United States
Department of
Agriculture

Soil
Conservation
Service

In cooperation with
the University of Florida,
Institute of Food and
Agricultural Sciences,
Agricultural Experiment
Stations, and Soil
Science Department; and
the Florida Department of
Agriculture and Consumer
Services

Soil Survey of Franklin County, Florida

How To Use This Soil Survey

General Soil Map

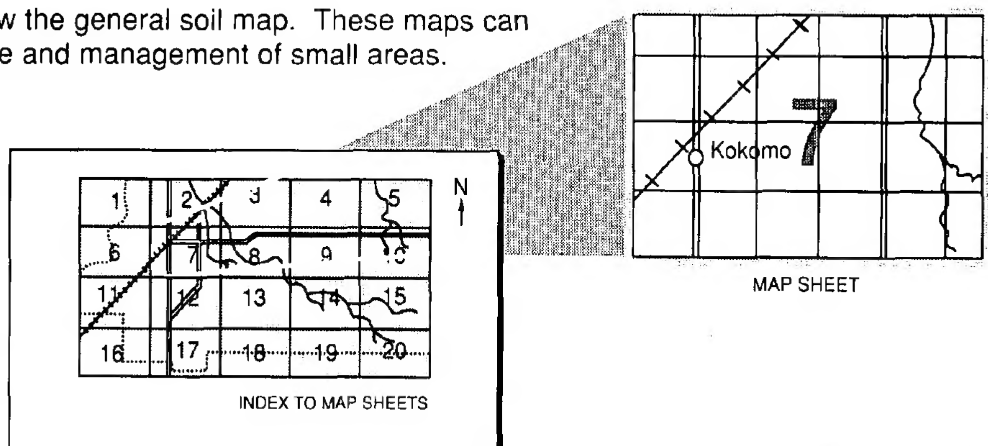
The general soil map, which is the color map preceding the detailed soil maps, shows the survey area divided into groups of associated soils called general soil map units. This map is useful in planning the use and management of large areas.

To find information about your area of interest, locate that area on the map, identify the name of the map unit in the area on the color-coded map legend, then refer to the section **General Soil Map Units** for a general description of the soils in your area.

Detailed Soil Maps

The detailed soil maps follow the general soil map. These maps can be useful in planning the use and management of small areas.

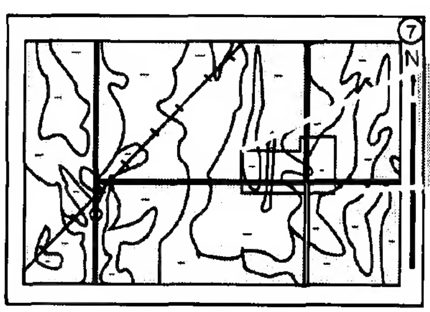
To find information about your area of interest, locate that area on the **Index to Map Sheets**, which precedes the soil maps. Note the number of the map sheet, and turn to that sheet.



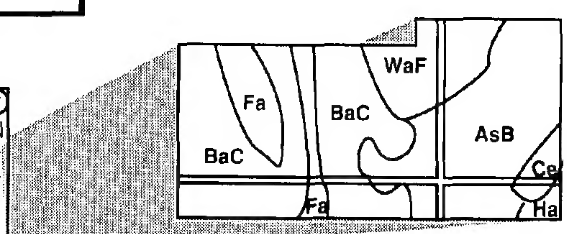
INDEX TO MAP SHEETS

MAP SHEET

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Index to Map Units** (see Contents), which lists the map units by symbol and name and shows the page where each map unit is described.



MAP SHEET



AREA OF INTEREST

NOTE: Map unit symbols in a soil survey may consist only of numbers or letters, or they may be a combination of numbers and letters.

The **Summary of Tables** shows which table has data on a specific land use for each detailed soil map unit. See **Contents** for sections of this publication that may address your specific needs.

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other federal agencies, state agencies including the Agricultural Experiment Stations, and local agencies. The Soil Conservation Service has leadership for the federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 1988. Soil names and descriptions were approved in 1990. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1988. This soil survey was made cooperatively by the U.S. Department of Agriculture, Soil Conservation Service and Forest Service; the U.S. Department of the Interior; the University of Florida, Institute of Food and Agricultural Sciences, Agricultural Experiment Stations, and Soil Science Department; the Florida Department of Natural Resources; the Florida Department of Agriculture and Consumer Services; and the Florida Department of Transportation. The Franklin County Board of Commissioners provided financial assistance. The survey is part of the technical assistance furnished to the Franklin County Soil and Water Conservation District.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

All programs and services of the Soil Conservation Service are offered on a nondiscriminatory basis, without regard to race, color, national origin, religion, sex, age, marital status, or handicap.

Cover: Shrimp boats docked alongside the Apalachicola River. Bohicket and Tisonia soils are in the delta marsh areas in the background. These soils, which are flooded daily by normal high tides, are important to the natural productivity of the coastal marshes in Franklin County.

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Issued February 1994

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Foreword

This soil survey contains information that can be used in land-planning programs in Franklin County. It contains predictions of soil behavior for selected land uses. The survey also highlights limitations and hazards inherent in the soil, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Soil Conservation Service or the Cooperative Extension Service.

Niles Glasgow

T. Niles Glasgow
State Conservationist
Soil Conservation Service

Soil Survey of
Franklin County, Florida

By Leland D. Sasser, Ken L. Monroe, and Joseph N. Schuster, Soil Conservation Service

Fieldwork by Robert E. Evon, Terry McCormick, Val Krawiecke, and Melvin Simmons, Soil Conservation Service, and Bobby Scott, James Hart, and Earl Vanatta, Forest Service

United States Department of Agriculture, Soil Conservation Service,
in cooperation with
the University of Florida, Institute of Food and Agricultural Sciences, Agricultural Experiment Stations, and Soil Science Department; and the Florida Department of Agriculture and Consumer Services

FRANKLIN COUNTY is on the gulf coast of the panhandle of Florida (fig. 1). It is on the western edge of the big bend area of Florida. It is bordered on the north by Liberty and Wakulla Counties and on the west by Gulf County. It is surrounded by the Gulf of Mexico on the south and east. The Apalachicola, Brothers, and Jackson Rivers form much of the western boundary between Gulf and Franklin Counties. The Ochlockonee River and Ochlockonee Bay form the northeastern boundary between Wakulla and Franklin Counties.

The county is about 28 miles wide at its widest point, from near Sumatra to Cape St. George, and about 54 miles long from Indian Pass to Bald Point. It has about 348,698 acres of land area, or about 545 square miles. About 34,200 acres is federally owned land. This land is in the Apalachicola National Forest, which is in the northwest corner of the county, and in the St. Vincent National Wildlife Refuge, which is mostly on St. Vincent Island.

Apalachicola, the county seat, has a population of about 2,600. It is located at the mouth of the Apalachicola River in the southwestern part of the county.

The population of Franklin County in 1986 was about 8,500, or 15.6 people per square mile. The population is concentrated in the coastal communities, in a narrow strip along the coast, and on St. George Island. The commercial seafood industry, tourism, and forestry are the major industries in the county. Large tracts of land are owned by paper companies, and timber production is the major industry in these areas.

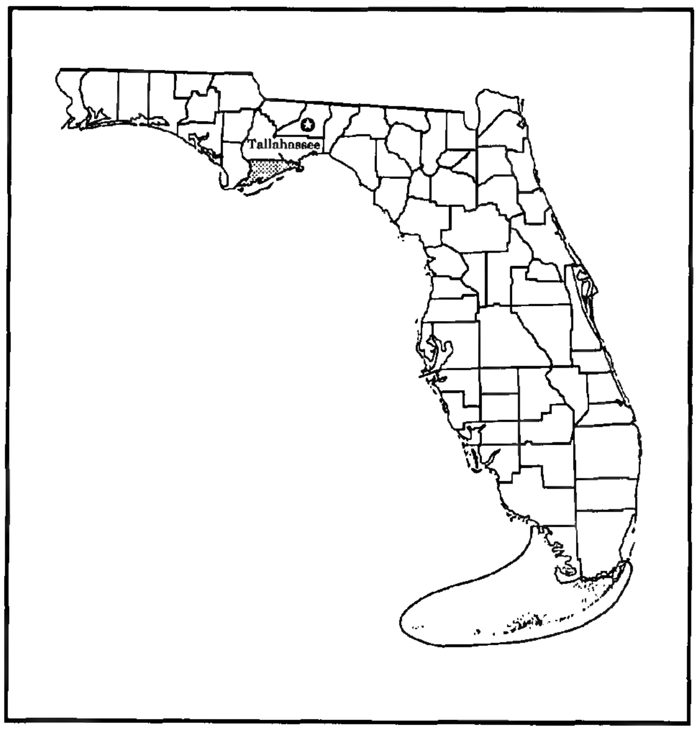

Figure 1.—Location of Franklin County in Florida.

General Nature of the County

This section provides general information about environmental and cultural factors that affect the use and management of the soils in Franklin County. It describes climate, history and development, geomorphology, stratigraphy, ground water, relief and drainage, water resources, recreation, and transportation facilities.

Climate

Franklin County has a moderate climate. Summers are long, warm, and humid. Winters are mild. The Gulf of Mexico moderates the temperatures. Table 1 provides data on temperature and precipitation for the survey area as recorded at Apalachicola. Freeze data are shown in table 2.

In winter, the average temperature is 56 degrees F and the average daily minimum temperature is 48 degrees. The lowest temperature on record, which occurred at Apalachicola on January 21, 1985, is 9 degrees. The average date of the first killing frost in winter is December 21 in Apalachicola and December 5 in Carrabelle.

In summer, temperatures are moderated by breezes from the Gulf of Mexico and by cumulus clouds, which frequently shade the land without completely obscuring the sun. The average temperature in June, July, August, and September is about 80 degrees F. Temperatures of 90 degrees or higher occur in May, June, July, August, and September, but 100 degrees is reached only rarely. In July and August, the warmest months, the average maximum temperature is 88 degrees. The highest recorded temperature, which occurred at Apalachicola on July 14, 1932, is 102 degrees.

The total annual precipitation is about 56 inches. Of this, 29.5 inches, or about 53 percent, usually falls in the summer rainy season, from June through September. About 16 inches, or about 30 percent, falls in the winter rainy season, from late December through April. May, October, and November are generally the driest months.

The average relative humidity in midafternoon is about 60 to 70 percent. Humidity is higher at night, and the average at dawn is about 85 percent. The sun shines 65 percent of the time possible in summer and 60 percent in winter. The prevailing wind is from the north in winter and from the south in summer. The annual mean windspeed is 7.9 miles per hour. The lowest monthly windspeed, 6.5 miles per hour, occurs in July and August, and the highest, 9.0 miles per hour, occurs in March.

In summer, because the air is moist and unstable, thunderstorms occur frequently. They generally are of short duration. Thunderstorms occur on about 70 days each year. In summer they occur on an average of 2 to 4 days each week. Sometimes 2 or 3 inches of rain falls within a period of only 1 or 2 hours. Rain that lasts all day is rare in summer. Winter and spring rains generally are not as intense as the summer thunderstorms. Occasionally heavy rain and high winds accompany the passage of a tropical disturbance or hurricane. The heaviest 1-day rainfall during the period of record was 11.71 inches at Apalachicola in September 1932. The highest windspeed on record at Apalachicola, 85 miles per hour, occurred on November 21, 1985, during Hurricane Kate.

In winter, cold continental air flowing from the north across Franklin County and the Florida Panhandle is appreciably modified. The coldest weather generally occurs on the second night after the arrival of a cold front, after heat is lost through radiation.

Fog occurs on an average of five mornings a month in winter but almost never occurs in summer and fall. Snowfall is extremely rare. The snowfall, usually of short duration, is less than 0.5 inch. In 90 percent or more of the winters, there is no measurable snowfall. The heaviest 1-day snowfall on record was 1.2 inches, which occurred in February 1958.

History and Development

Franklin County's earliest inhabitants were Indians of the Lower Creek group. They harvested shellfish and other seafood from the bountiful coastal waters and used the extensive inland waterways of the Apalachicola River for trade with other settlements to the north. Use of the area by Europeans was restricted to intermittent trading posts and temporary ports of military importance during Spanish occupation of the northern part of Florida. These strategic ports were also used by French and English invaders.

Spanish influence in Florida declined, and Florida was ceded to the United States in 1820. President James Monroe established a customs district along Florida's gulf coast in 1821, and the first shipment of cotton arrived in Westpoint in 1822. Westpoint was officially renamed Apalachicola in 1831; in 1832, Apalachicola became the seat of newly formed Franklin County. The small gulf port city was prosperous for many years. By 1837, Apalachicola was the third largest cotton port on the Gulf of Mexico and the largest port in

Florida. During this economic boom period, a Franklin County resident, Dr. John Gorrie, invented artificial ice while searching for a cure for yellow fever in Apalachicola.

By 1860, Franklin County was slipping rapidly into economic decline. Railroads had become the preferred method of transporting cotton, and shipping blockades during the Civil War brought river trade to a standstill. At various times during the war, Apalachicola and surrounding Franklin County were held by both Union and Confederate troops, but there were no significant military events in the area.

Late in the 19th century, a small resort spa and logging town in central Franklin County became the city of Carrabelle. The economy of this area was revitalized by timber harvesting, milling, sales, and shipping in Carrabelle and in Apalachicola. Also, the sponge industry flourished in the area during this period. By 1907, railroads had connected both Carrabelle and Apalachicola to major centers of commerce in the South, supplementing the limited shipping facilities in the port cities.

By 1920, most of the accessible timber in the county had been harvested. The seafood industry soon became Franklin County's major source of economic growth. Salted and iced fish, canned oysters and shrimp, and other gulf delicacies were shipped to ports as far away as Boston. The sale of naval stores and limited farming supplemented the area's economy, as it had since the 1840's. In 1938, the east and west shores of the geographically divided county were connected by a 7-mile bridge crossing the Apalachicola River and the eastern part of the bay.

During World War II, military bases were established in Franklin County and soldiers came to the area for training. The soldiers at Camp Gordon Johnson, which was east of Carrabelle in the town of Lanark, were trained in Franklin County swamps and coastal waters. Apalachicola was the site of a large military air base. The postwar depression affected most of the inhabitants of Franklin County, and economic recovery was slow.

By 1960, the area's economy was dominated by commercial fishing businesses and paper companies that planted and harvested pine trees on massive tracts of land. By the late 1980's, drought, severe hurricanes, overharvesting, and other factors had greatly impacted the seafood industry. In 1988, state and federal assistance was committed for the establishment of aquiculture in the coastal waters. By that time, economic development in tourism, boat construction, and other industries was creating diversified employment opportunities for an increasing number of Franklin County residents.

Geomorphology

Richard A. Johnson, Florida Geological Survey, Tallahassee, Florida, prepared this section and the sections on stratigraphy, ground water, and mineral resources.

Franklin County is a part of the Apalachicola delta complex and lies within the Terraced Coastal Lowland *(5)*. This division consists of a series of marine terraces composed of sand or clayey sand. The terraces are plains formed at certain specific ranges of elevations by wave action and ocean currents in the past when sea level was higher. Three such terraces are located in Franklin County *(3)*. These are the Silver Bluff, which is about 1 to 10 feet above mean sea level (MSL); the Pamlico, which is 8 to 25 feet above MSL; and the Talbot, which is 25 to 42 feet above MSL.

Specific geomorphic features of Franklin County include the Gulf Barrier Chain (St. George Island and Dog Island), a series of elongate islands composed of quartz sand that formed on the Gulf of Mexico side of the Gulf Coastal Lagoon (Apalachicola Bay and St. George Sound) *(5)*. Near the coastline of the Gulf Coastal Lagoon and throughout Franklin County are relict bars and spits, which formed at higher sea level stands. Interlevee swamps and bays, which are related to the Apalachicola delta, occupy most of the eastern portion of Franklin County.

Much of Franklin County is swampy, mostly as a result of two factors. First, as the Apalachicola River deposits sediments where it enters Apalachicola Bay, a delta forms that blocks the river channel. Another channel is then formed elsewhere. This process results in flat, swampy land. Second, the type of sediment material in the area contributes to the formation of swamps. Much of the material underlying the surficial unconsolidated sand is clayey sand or clay, which does not easily allow water to pass through. As a result, swamps and ponds are perched atop the impermeable clayey sand *(6)*.

Stratigraphy

Most water wells in Franklin County only penetrate rocks of Miocene age and younger, such as the St. Marks Formation and Bruce Creek Limestone, the Intracoastal Formation, and the Alum Bluff Group (undifferentiated) sediments. Hence, deeper units will not be considered in this section. Figure 2 shows a stratigraphic cross section across Franklin County from southwest to northeast.

Miocene Series

St. Marks Formation.—The St. Marks Formation (early Miocene in age) is composed of tan to white,

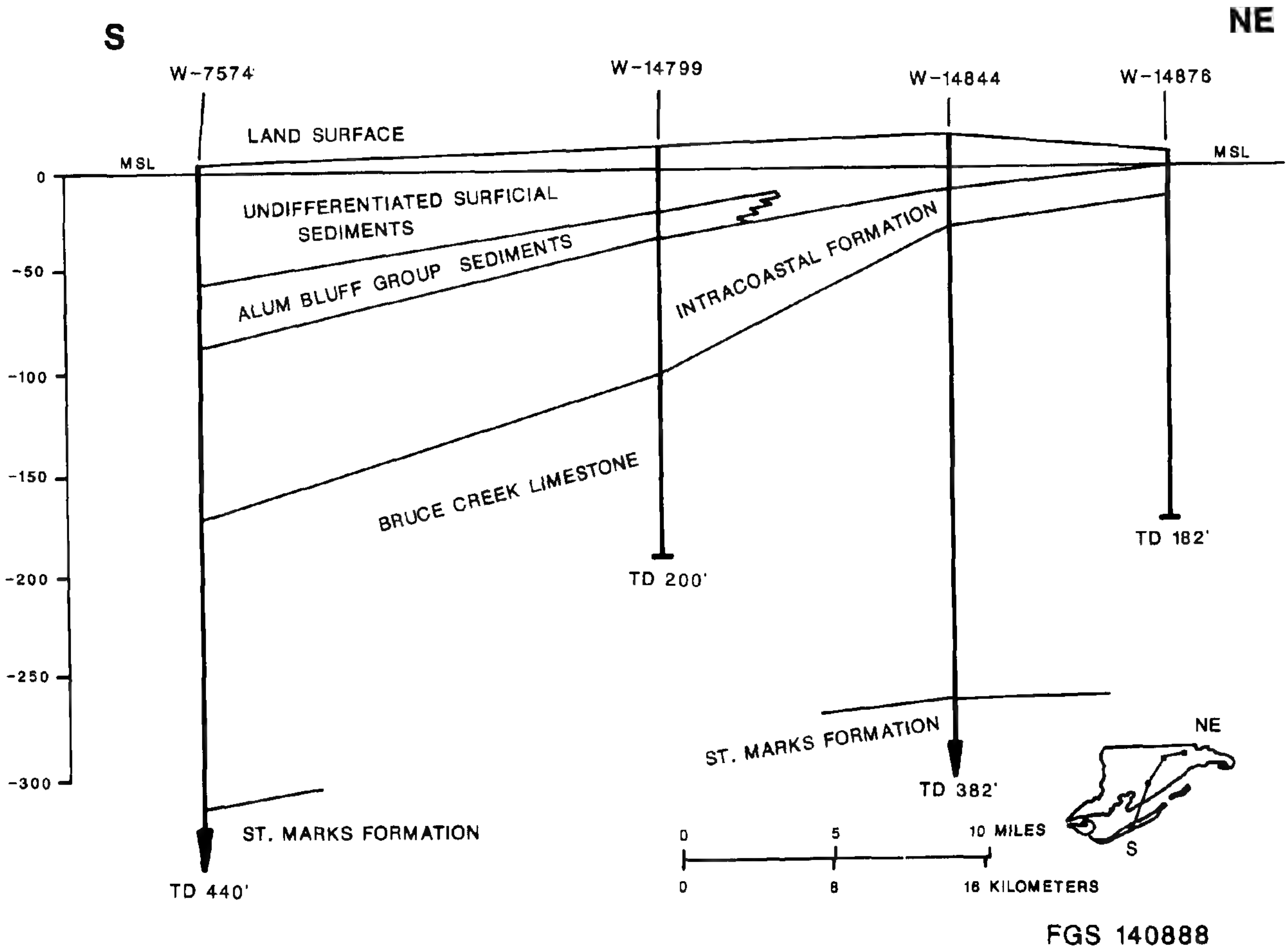

Figure 2.—Stratigraphic cross section of Franklin County from southwest to northeast.

slightly sandy, molluskan moldic, very fine grained, unrecrystallized to completely recrystallized limestone. Occasional thin beds of brown quartz sand and green to blue, relatively pure clay are interbedded with the limestone to the north where the unit crops out in Wakulla County, but beneath Franklin County the St. Marks Formation is predominantly limestone.

The St. Marks Formation is typically exposed in sinkholes and along streams and rivers in eastern Wakulla County (northeast of Franklin County). In western Franklin County, the St. Marks Formation is too deep to be used as a water supply in most wells. In eastern and central Franklin County, the top of the formation is located at approximately 300 to 450 feet below MSL. The formation dips to the south and southwest *(7)*. The St. Marks limestone unconformably overlies the Suwannee Limestone and unconformably underlies the Bruce Creek Limestone.

Bruce Creek Limestone.—The Bruce Creek Limestone (early to middle Miocene in age) is composed of tan to gray, sandy, slightly phosphatic, molluskan moldic, coarse grained, fossiliferous limestone *(7)*. The type area of the formation is in the bed of Bruce Creek, Walton County; this outcrop is the only place where the formation can be seen at the surface. In Franklin County, the top of the formation ranges from 25 feet below MSL in the extreme eastern portion of the county to almost 350 feet below MSL in the extreme western portion of the county *(7)*. The Bruce Creek Limestone overlies the St. Marks Formation and underlies the Intracoastal Formation.

Miocene to Pliocene Series

Intracoastal Formation.—The Intracoastal Formation (middle Miocene to late Pliocene in age) is composed of very sandy, phosphatic, poorly cemented and crumbly, fossiliferous, coarse grained limestone. Fossils include foraminifera, mollusks, shark teeth, ostracods, sponge spicules, and echinoids. One of the three known occurrences of the formation at or near the surface is in a road metal quarry located in central Franklin County. Here, the Intracoastal Formation is composed of very coarse grained, fossiliferous limestone. Fossils include large mollusks, echinoids, and other material in a matrix of finer fossil fragments. The limestone is moderately well cemented and hard but somewhat crumbly. The top of the Intracoastal Formation is at the surface in the easternmost part of the county and ranges to 175 feet below the surface at the western edge *(7)*. The Intracoastal Formation is underlain by the Bruce Creek Limestone and is overlain by the Alum Bluff Group sediments.

Pliocene Series

Alum Bluff Group (undifferentiated).—These sediments (late Pliocene in age) consist of two general lithologies. These include unconsolidated to poorly indurated, shelly sand and hard, slightly phosphatic, sandy, shelly limestone in a calcite or clay matrix. Some sandy shell beds also occur within the formation. Mollusks are the most common type of fossil. Forams, ostracods, bryozoans, echinoids, and worm traces also may occur *(7)*. The Alum Bluff Group sediments are overlain by undifferentiated surficial sediments and are underlain by the Intracoastal Formation.

Pleistocene and Holocene Series

Undifferentiated Surficial Sediments.—These sediments consist of alluvium and marine terrace deposits. They are predominantly unconsolidated quartz sand, sandy clay, and clayey sand, all of which are unfossiliferous. They overlie the Alum Bluff Group sediments throughout Franklin County.

Ground Water

An aquifer is a stratum of permeable material that is full of water and that yields the water to wells penetrating it. Two aquifers underlie Franklin County. These are the surficial aquifer system and the Floridan aquifer system. The surficial aquifer system is composed of unconsolidated quartz sand. This aquifer is very discontinuous because of clay and sandy clay lithologies that are commonly interbedded with the quartz sand. Also, the presence of clay between the sand grains in some clayey sand lithologies prevents water from percolating through the sand. Thus, wells that penetrate clay, sandy clay, or clayey sand generally do not provide a sufficient amount of water. The surficial aquifer system is generally very thin and is not often used in Franklin County.

The Floridan aquifer system is composed of the Bruce Creek Limestone and the St. Marks Formation. Other deeper limestone and dolostone formations are considered part of the Floridan aquifer system, but in Franklin County they frequently contain salty water and are too deep to be used economically. The top of the Bruce Creek Limestone represents the top of the Floridan aquifer system in this area.

Water is derived from the Floridan aquifer system from cavities and fractures, from interstitial pore space, and from moldic porosity. Interconnected solution cavities and fractures are typically a few inches to tens of feet in size and can produce great quantities of water. Pore space consists of open voids between grains, such as between fossil grains. Pore space is usually very small in individual pore volume. If the pores are sufficiently interconnected, moderate quantities of water can be obtained. Moldic porosity is the open volume that results when fossils are removed by dissolution, leaving a void in the rock. Both the Bruce Creek Limestone and the St. Marks Formation typically have low to high moldic porosity.

In some areas the Intracoastal Formation and the Alum Bluff Group sediments are permeable enough to provide small quantities of water to wells. The Floridan aquifer system, however, remains the principal aquifer and source of ground water in the county.

Mineral Resources

There are no commercially mined mineral commodities in Franklin County. One semiactive shallow limestone quarry is maintained for private use. In this quarry, the crumbly and coarse grained Intracoastal Formation is mined by dragline from below water level. The material is used locally, primarily for roadfill.

The unconsolidated sand that blankets the county is mined from scattered shallow pits for local use. These pits are usually small, and if they are abandoned or infrequently used, they commonly appear to be shallow lakes or ponds.

Relief and Drainage

Franklin County is characterized by moderate relief near the coast and little or no visible relief in most of the remaining areas. The relict dunes of the mainland coastal ridge and recent dunes of the coastal islands have the most prominent relief in the county. The

highest elevation in the county, about 52 feet, occurs on the mainland coastal ridge near Carrabelle.

The mainland coastal ridge widens abruptly several miles east of Lanark Village and encompasses most of the eastern two-thirds of St. James Island between Ochlockonee Bay and the Gulf. This wide sand ridge is pocketed with numerous closed depressions and small lakes and ponds. West of St. James Island, a series of interconnecting depressions and ponds lies directly landward of the mainland coastal ridge. Most of these depressions are drained in a northerly direction by small streams. The small streams are intercepted by larger streams and rivers, including Whisky George Creek, Cash Creek, the Crooked River, the New River, and the Jackson River. These larger streams drain to the south into the Ochlockonee Bay and the Gulf.

From north of the area where the small streams are intercepted to the county line, there is a gradual increase in elevation of 1 to 2 feet per mile. The resulting nearly level, swampy plain comprises the central part of the county and includes Tates Hell Swamp, Thousand Yard Bay, and Pickett Bay. Tates Hell Swamp is separated from Pickett Bay and Thousand Yard Bay by the New River and its wide, low banks. North of these swamps there are no areas of significant relief, except for a series of low uplands in northwestern Franklin County near Sumatra. These uplands are more typical of the inland Florida Panhandle landscapes. They are dissected by small streams that flow west into the Apalachicola River.

There are few clear geographic divides that can be used to delineate local watersheds in Franklin County. The Apalachicola River and its tributaries drain much of western Franklin County. West of the river, the Jackson River connects Lake Wimico and several small tributaries to the Apalachicola River. Seaward of the Jackson River, the Apalachicola River forms a large delta plain traversed by numerous distributaries. East of the river is a sequence of south-flowing drainageways that become increasingly brackish as they near their coastal water destinations. These include Whisky George Creek and the New, Carrabelle, and Ochlockonee Rivers. Whisky George Creek drains central Tates Hell Swamp. The New River flows south out of Liberty County and joins with the Crooked River about 3 miles from the coast to form the Carrabelle River. The Crooked River is affected by tides for most of its length, from the Carrabelle River to the Ochlockonee River. The Ochlockonee River and Bay drain portions of eastern Franklin County.

Several prominent landscape features have formed on the coastal islands. A well developed sequence of narrow, parallel dune ridges and swales comprises a major portion of the land area on St. Vincent Island. This landscape pattern exerts substantial influence on surface drainage of the 12,000-acre island. Dog Island, Little St. George Island, and St. George Island all have large areas of dunes and swales, but the parallel distribution is not nearly as well developed as it is on St. Vincent Island. The coastal islands all have low coastal savannahs on recent overwash plains that are flooded during storm tides. One such plain on Little St. George Island was a dune field until the mid 1980's, when a series of hurricanes altered the fragile coastal landscape.

Water Resources

Most of Franklin County's natural and economic resources are directly related to its water resources. The Apalachicola River is formed near the Florida State line by the confluence of the Flint and Chattahoochee Rivers. This river system has a watershed of about 19,600 square miles, extending 541 miles from the source of the Chattahoochee River in the Blue Ridge Mountains of northern Georgia to the mouth of the Apalachicola River at Apalachicola Bay. The Apalachicola River and Bay system is used extensively for commercial and recreational navigation, commercial fishing and shellfish harvesting, sport fishing, and other outdoor recreational activities.

Apalachicola Bay and adjacent estuarine systems influenced by the freshwater flow of the Apalachicola River total about 155,500 acres. About 10,600 acres, or 7 percent of this area, is used for oyster beds. These beds produced 3.8 million pounds of harvested oysters in 1985. In 1985, the total shellfish harvest in Franklin County estuarine waters, including oysters, blue crabs, and shrimp, was 9 million pounds. The commercial finfish harvest in 1985 was slightly over 1 million pounds. In 1988, approximately 1,310 commercial bay and gulf vessels made Franklin County their home port.

Water resources also impact the rapidly growing tourism industry in Franklin County. Nearly 100 miles of sandy gulf and bay beaches attract visitors who engage in swimming, fishing, boating, sunning, birdwatching, shell collecting, and other activities. Approximately 55 miles of beach are on St. George Island, Little St. George Island, St. Vincent Island, and Dog Island. Of these coastal islands, only St. George Island is accessible by bridge.

Other freshwater systems in Franklin County include numerous tributaries of the Apalachicola River, the Ochlockonee River at Franklin County's eastern border, and the Carrabelle, New, and Crooked Rivers in central Franklin County. The Ochlockonee River, which originates in southern Georgia, forms a large bay at the point where it empties into the Gulf of Mexico. It is used

primarily for recreation and commercial fishing. The Carrabelle River is formed by the confluence of the New and Crooked Rivers about 1 mile north of Carrabelle. It provides deep-water portage for large fishing vessels. The New River and the Crooked River are small local systems used for freshwater fishing and boating. Many small perennial and annual streams throughout the county, especially in Tates Hell Swamp, empty directly into the Gulf or into larger systems. Few freshwater ponds of notable size are in Franklin County. The largest of these ponds are located on St. Vincent Island and near Alligator Point.

Water for household and commercial use is obtained either from deep wells owned by municipal utility organizations or from onsite shallow wells. Most water systems in Franklin County require substantial aeration to dissipate a high content of sulfides in the well water. The quality of onsite shallow well water is highly variable throughout the county. Increasing development along the coast will require innovative management if future water quality and quantity demands are to be met.

Recreation

Franklin County's abundant natural and cultural resources provide a wide variety of public recreational opportunities. The largest public recreational area in the county is the Apalachicola National Forest, located in northwestern Franklin County. This area has 21,800 acres available for outdoor activities, including fishing, hunting, boating, hiking, camping, and swimming. Large tracts of commercial woodland adjacent to the Apalachicola National Forest provide hunting, fishing, and sightseeing opportunities. The State-owned Fort Gadsden Historical Site, located within the Apalachicola National Forest, features the ruins of a 19th-century fort, a historic display and information kiosk, and picnic areas along the scenic Apalachicola River.

The John Gorrie State Museum in Apalachicola is Florida's smallest state park. It features a replica of Dr. Gorrie's ice machine and other exhibits pertinent to the 19th-century cotton, timber, and sponge industries of the area. The Dr. Julian G. Bruce St. George Island State Park occupies about 2,000 acres of undeveloped beaches and dunes and is easily accessible for numerous outdoor activities. Many other public and private beach areas also are available for sunning, shelling, swimming, and saltwater fishing.

In southwestern Franklin County, Cape St. George State Preserve and St. Vincent National Wildlife Refuge provide unique opportunities for wildlife observation, photography, hiking, and shelling. These islands are accessible only by boat, and the refuge permits only day use, except during special educational programs. The Apalachicola National Estuarine Research Reserve headquarters in Apalachicola regularly coordinates combined educational, volunteer, and recreational trips to these islands.

Numerous private businesses in Carrabelle, Eastpoint, St. George Island, and Apalachicola offer charter fishing, shelling, and sightseeing excursions to points along the coastal islands and Apalachicola River. A scenic route along U.S. Highway 98 from Carrabelle to Apalachicola is a popular introduction to Franklin County's coastal beauty. Along this route, public beaches, many miles of coastline, parks, and other lands offer access for fishing, boating, and picnicking.

Transportation Facilities

Franklin County is served by U.S. Highways 98 and 319. These highways enter northeastern Franklin County from Wakulla County and provide access to Tallahassee and other points to the north and east. Highway 98 follows the scenic coastal route and intersects Highway 319 east of St. James. These combined routes continue a scenic route along the coast of Franklin County and connect the coastal towns and villages. U.S. Highway 98 continues west of Apalachicola and connects Franklin County with points to the north and west.

North-south highways in the county include State Highway 65 from north of East Point through Sumatra and County Highway 67 north of Carrabelle. The county also is served by a system of state and county roads that connect the coastal communities, St. George Island, and the more rural areas. Dog Island, St. Vincent Island, and Little St. George Island can be accessed only by public or private vessels because no bridges to these islands exist. Ferry service is available to Dog Island from Carrabelle, and rail service is available to the areas north and west of Apalachicola.

Regularly scheduled air transportation is available at Panama City Airport, about 65 miles west of Apalachicola, or at the Tallahassee Municipal Airport, about 50 miles north of Carrabelle. Emergency medical helicopter service is available to county residents. Small airstrips are located on St. George Island and Dog Island and at Carrabelle. The Apalachicola Municipal Airport, which was formerly a military facility, can accommodate larger aircraft.

How This Survey Was Made

This survey was made to provide information about the soils in the survey area. The information includes a description of the soils and their location and a

discussion of the suitability, limitations, and management of the soils for specified uses. Soil scientists observed the steepness, length, and shape of slopes; the general pattern of drainage; the kinds of crops and native plants growing on the soils; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material from which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils in the survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil is associated with a particular kind of landscape or with a segment of the landscape. By observing the soils in the survey area and relating their position to specific segments of the landscape, a soil scientist develops a concept, or model, of how the soils were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. The system of taxonomic classification used in the United States is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area are generally collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot assure that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Map Unit Composition

A map unit delineation on a soil map represents an area dominated by one major kind of soil or an area dominated by two or three kinds of soil. A map unit is identified and named according to the taxonomic classification of the dominant soil or soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural objects. In common with other natural objects, they have a characteristic variability in their properties. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of soils of other taxonomic classes. Consequently, every map unit is made up of the soil or soils for which it is named and some soils that belong to other taxonomic classes. In the detailed soil map units, these latter soils are called inclusions or included soils.

In the general soil map units, they are called soils of minor extent.

Most inclusions have properties and behavioral patterns similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting (similar) inclusions. They may or may not be mentioned in the map unit descriptions. Other inclusions, however, have properties and behavior divergent enough to affect use or require different management. These are contrasting (dissimilar) inclusions. They generally occupy small areas and cannot be shown separately on the soil maps because of the scale used in mapping. The inclusions of contrasting soils are mentioned in the map unit descriptions. A few inclusions may not have been observed and consequently are not mentioned in the descriptions, especially where the soil pattern was so complex that it was impractical to make enough observations to identify all of the kinds of soils on the landscape.

The presence of inclusions in a map unit in no way diminishes the usefulness or accuracy of the soil data. The objective of soil mapping is not to delineate pure taxonomic classes of soils but rather to separate the landscape into segments that have similar use and management requirements. The delineation of such landscape segments on the map provides sufficient information for the development of resource plans, but onsite investigation is needed to plan for intensive uses in small areas.

General Soil Map Units

The general soil map at the back of this publication shows broad areas that have a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil map is a unique natural landscape. Typically, it consists of one or more major soils and some minor soils. It is named for the major soils. The soils making up one unit can occur in another but in a different pattern.

The general soil map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or a building or other structure. The soils in any one map unit differ from place to place in slope, depth, drainage, and other characteristics that affect management.

Soils of the Low Uplands and High Flatwoods

The soils in this group are somewhat poorly drained and moderately well drained and are nearly level or gently sloping. They are in the northwestern part of the county, west of State Road 65 and east of the Apalachicola River.

1. Albany-Blanton-Stilson

Nearly level or gently sloping, somewhat poorly drained and moderately well drained soils that are sandy and loamy or are sandy and have a loamy subsoil that contains plinthite

This map unit consists of soils on ridges of knolls in the low uplands and in the flatwoods. It occurs as several closely scattered areas in the northwestern part of the county, dominantly west of State Road 65 and east of the Apalachicola River. Individual areas are blocky or irregular in shape.

The landscape is dominantly nearly level or gently sloping. Scattered drainageways, swamps, and flatwoods are common in most areas. The natural vegetation is mostly slash pine, longleaf pine, and mixed oak trees and an understory of saw palmetto, woody shrubs, and grasses.

This map unit makes up about 5,800 acres, or about 2 percent of the total acreage. It is about 40 percent Albany soils, 20 percent Blanton soils, 14 percent Stilson soils, and 26 percent soils of minor extent.

Albany soils are nearly level and somewhat poorly drained. Typically, the surface layer is dark gray fine sand about 8 inches thick. The subsurface layer is fine sand about 42 inches thick. The upper 14 inches is grayish brown and pale brown. The lower 28 inches is light gray. The upper 12 inches of the subsoil is light brownish gray sandy loam. The lower part to a depth of 80 inches or more is light brownish gray sandy clay loam.

Blanton soils are nearly level and gently sloping and are moderately well drained. Typically, the surface layer is gray fine sand about 6 inches thick. The subsurface layer is fine sand about 66 inches thick. The upper 25 inches is light yellowish brown. The next 30 inches is very pale brown. The lower 11 inches is light gray. The subsoil extends to a depth of 80 inches or more. It is light yellowish brown sandy loam that has many light gray, strong brown, and yellowish red mottles.

Stilson soils are nearly level and moderately well drained. Typically, the surface layer is gray fine sand about 7 inches thick. The subsurface layer is fine sand about 25 inches thick. The upper 6 inches is light yellowish brown. The lower 19 inches is very pale brown and has a few brownish yellow mottles. The upper part of the subsoil, to a depth of about 43 inches, is yellowish brown fine sandy loam that has a few very pale brown mottles. The next 16 inches is yellowish brown sandy clay loam that has very pale brown and light brownish gray mottles and is 5 to 8 percent plinthite. The lower part to a depth of 80 inches or more is sandy clay loam that is mottled in shades of brown, red, and gray.

Of minor extent in this unit are Leefield, Lynchburg, Ortega, Pelham, Plummer, Ridgewood, and Sapelo soils.

Most areas of this unit lie within the Apalachicola

National Forest. They are managed for the production of pine trees, as wildlife habitat, and for recreational uses.

Soils of the Sand Ridges and Coastal Islands

The soils in this group are excessively drained, moderately well drained, and poorly drained and are nearly level to strongly sloping. They are mainly on coastal ridges, on recent and remnant dunes, and in narrow areas of flatwoods. They are on the coastal islands, on the mainland coast, and in the eastern part of the county on St. James Island, east of Highway 319.

2. Kershaw-Ortega-Ridgewood

Nearly level to strongly sloping, excessively drained, moderately well drained, and somewhat poorly drained soils that are sandy throughout

This map unit consists of soils on high sandy ridges and side slopes. It is in the extreme eastern part of the county and occurs mainly as one large area extending from east of U.S. Highway 319 to the county's north-south segment of U.S. Highway 98. Several smaller areas are along the Gulf Coast and near the Ochlockonee River where it is crossed by U.S. Highway 319.

The landscape is nearly level to strongly sloping. Some areas are interspersed with small depressions and small areas of flatwoods. The natural vegetation consists of longleaf pine, sand pine, slash pine, turkey oak, and scrub live oak and an understory of wiregrass and rosemary. Saw palmetto is scattered throughout the unit but is more abundant in areas of the Ridgewood soils.

This map unit makes up about 11,200 acres, or about 3 percent of the total acreage. It is about 50 percent Kershaw soils, 25 percent Ortega soils, 22 percent Ridgewood soils, and 3 percent soils of minor extent.

Kershaw soils are gently sloping to strongly sloping and are excessively drained. Typically, the surface layer is light gray sand about 5 inches thick. Below this, to a depth of about 58 inches, is light yellowish brown fine sand. The next layer to a depth of 80 inches or more is very pale brown fine sand that has small patches of white, clean sand grains.

Ortega soils are nearly level and gently sloping and are moderately well drained. Typically, the surface layer is grayish brown fine sand about 5 inches thick. Below this is fine sand. The upper 38 inches is brownish yellow. The next 20 inches is very pale brown and has light gray and strong brown mottles. The lower part to a depth of 80 inches or more is light gray and has strong brown and reddish yellow mottles.

Ridgewood soils are nearly level and gently sloping and are somewhat poorly drained. Typically, the surface layer is gray sand about 5 inches thick. Below this is sand. The upper 29 inches is brownish yellow and has light gray mottles. The next 30 inches is very pale brown and has strong brown and brownish yellow mottles. The lower part to a depth of 80 inches or more is light brownish gray and brown.

Of minor extent in this unit are Kureb, Leon, Mandarin, Resota, Rutlege, and Scranton soils.

Most areas of this unit support natural vegetation or are used for the commercial production of pine trees.

3. Mandarin-Resota-Leon

Nearly level or gently sloping, poorly drained to moderately well drained soils that are sandy throughout; some are stained with organic matter between depths of 10 and 40 inches

This map unit consists of soils on the sandy ridge on the mainland along the gulf and coastal bays. It occurs as several narrow, nearly continuous areas broken by rivers and coastal marshes.

The landscape consists of nearly level or gently sloping ridges along the coastline. The natural vegetation consists of sand pine, slash pine, Chapman oak, myrtle oak, turkey oak, and scrub live oak and an understory of woody shrubs, grasses, and saw palmetto.

This map unit makes up about 15,800 acres, or about 5 percent of the total acreage. It is about 30 percent Mandarin soils, 25 percent Resota soils, 20 percent Leon soils, and 25 percent soils of minor extent.

Mandarin soils are nearly level and somewhat poorly drained. Typically, the surface layer is gray fine sand about 4 inches thick. Below this, to a depth of about 25 inches, is light gray fine sand. The subsoil is fine sand about 9 inches thick. It is dark reddish brown grading to dark brown. The substratum is fine sand. The upper 27 inches is brown. The lower part to a depth of 80 inches or more is white and has light yellowish brown and brownish yellow mottles.

Resota soils are nearly level and gently sloping and are moderately well drained. Typically, the surface layer is gray fine sand about 3 inches thick. The subsurface layer, to a depth of about 22 inches, is white fine sand. The subsoil is fine sand and has organic stains at its upper boundary. The upper 22 inches is brownish yellow. The lower 14 inches is yellow and has reddish yellow mottles. The substratum to a depth of 80 inches or more is very pale brown fine sand that has reddish yellow mottles.

Leon soils are nearly level and poorly drained.

Typically, the surface layer is dark gray sand about 8 inches thick. The subsurface layer, to a depth of about 22 inches, is white sand. The subsoil extends to a depth of 72 inches. It is sand. The upper 18 inches is very dark brown. The lower 32 inches is mixed very dark brown and dark brown. Below this to a depth of 80 inches or more is light brownish gray and dark grayish brown fine sand.

Of minor extent in this unit are Corolla, Dorovan, Hurricane, Kureb, Lynn Haven, Ortega, Pamlico, Pickney, Ridgewood, Rutlege, and Scranton soils.

Many areas of this unit are used for urban development, including the cities and towns of Apalachicola, Eastpoint, Carrabelle, and Lanark Village. Some areas support natural vegetation or are used for the production of pine trees.

4. Corolla-Duckston-Newhan

Nearly level to steep, somewhat poorly drained, poorly drained, and excessively drained soils that are sandy throughout

This map unit consists of soils on recent coastal dunes and in sandy, flat swales on the coastal islands. One small area is on the peninsula near Alligator Point and extends from Lighthouse Point east to Peninsular Point.

The landscape consists of terrain that ranges from nearly level, low swales to high, rolling swales and steep dunes. The natural vegetation on dunes and side slopes and in high swales is sparse. It consists of slash pine, myrtle oak, Chapman oak, and scrub live oak and an understory of rosemary, woody shrubs, and grasses. Slash pine, saw palmetto, woody shrubs, and grasses are more abundant in the wetter low swales.

This map unit makes up about 16,200 acres, or about 5 percent of the total acreage. It is about 35 percent Corolla soils, 35 percent Duckston soils, 10 percent Newhan soils, and 20 percent soils of minor extent.

Corolla soils are nearly level and gently sloping and are somewhat poorly drained to moderately well drained. Typically, the surface layer is light gray sand about 6 inches thick. Below this, to a depth of about 32 inches, is very pale brown and light gray sand. The next 2 inches is a buried surface layer of grayish brown sand. Below this to a depth of 80 inches or more is light gray sand.

Duckston soils are nearly level and poorly drained. Typically, the surface layer is dark gray sand about 4 inches thick. Below this to a depth of 80 inches or more is sand. In sequence downward, it is grayish brown, light brownish gray, white, and light gray.

Newhan soils are gently undulating to steep and are excessively drained. Typically, the surface layer is gray sand about 1 inch thick. Below this to a depth of 80 inches or more is sand. In sequence downward, it is light gray, white, mixed light gray and light brownish gray, and light gray.

Of minor extent in this unit are Kershaw, Hurricane, Mandarin, Resota, and Rutlege soils.

Large areas of this unit support natural vegetation. Many areas are used for homesite development, particularly on Saint George Island and near Alligator Point.

Soils of the Flatwoods

The soils in this group are very poorly drained and poorly drained and are nearly level. They are in the flatwoods and in drainageways and slight depressions throughout the county. Two areas of notable size occur in the northwestern and southwestern parts of the county.

5. Plummer-Surrency-Pelham

Nearly level, poorly drained and very poorly drained soils that have a loamy subsoil

This map unit consists of soils in the flatwoods and in drainageways and depressions. Several small areas are in the western part of the county, and one large area is in the northwestern part extending southwest from the New River at the Liberty County line to the Apalachicola River flood plain near Gardner Landing. Individual areas of this map unit are blocky or elongated.

The landscape is nearly level. The natural vegetation consists of slash pine, water oak, cypress, sweetbay, blackgum, titi, gallberry, fetterbush, waxmyrtle, scattered saw palmetto, St Johnswort, pitcherplant, and wiregrass.

This map unit makes up about 52,600 acres, or about 15 percent of the total acreage. It is about 50 percent Plummer soils, 20 percent Surrency soils, 10 percent Pelham soils, and 20 percent soils of minor extent.

Plummer soils are poorly drained. Typically, the surface layer is fine sand about 12 inches thick. The upper 7 inches is very dark gray, and the lower 5 inches is dark gray. The subsurface layer, to a depth of about 58 inches, is gray fine sand. The upper part of the subsoil is gray fine sandy loam about 11 inches thick. The lower part to a depth of 80 inches or more is light gray sandy loam.

Surrency soils are very poorly drained. Typically, the surface layer is black fine sand about 12 inches thick. The subsurface layer extends to a depth of about 34 inches. It is fine sand. The upper 16 inches is dark grayish brown, and the lower 6 inches is grayish brown.

The subsoil to a depth of 80 inches or more is gray sandy loam grading to sandy clay loam.

Pelham soils are poorly drained. Typically, the surface layer is very dark gray fine sand about 6 inches thick. The subsurface layer is fine sand. The upper 12 inches is dark grayish brown and has light yellowish brown mottles. The lower part, to a depth of about 37 inches, is light gray. The upper part of the subsoil is light gray fine sandy loam about 9 inches thick. The lower part to a depth of 80 inches or more is light gray sandy clay loam.

Of minor extent in this unit are Albany, Leefield, Leon, Rutlege, Sapelo, and Scranton soils.

Most areas of this unit are used for the commercial production of pine trees, for recreational uses, or as wildlife habitat.

6. Leon-Scranton-Lynn Haven

Nearly level, poorly drained soils that are sandy throughout; some are stained with organic matter between depths of 10 and 30 inches

This map unit consists of soils in the flatwoods. It occurs as several areas scattered throughout the county. The largest area extends from west of the city of Apalachicola to the Gulf County line. Another large area ranges from 1 to 5 miles in width and roughly parallels the coast from Carrabelle to U.S. Highway 319. Individual areas of this unit are blocky or elongated.

The landscape is nearly level. The natural vegetation consists mostly of slash pine and an understory of saw palmetto, gallberry, waxmyrtle, and various grasses and herbaceous plants.

This map unit makes up about 58,600 acres, or about 17 percent of the total acreage. It is about 35 percent Leon soils, 35 percent Scranton soils, 10 percent Lynn Haven soils, and 20 percent soils of minor extent.

Leon soils are poorly drained. Typically, the surface layer is dark gray sand about 8 inches thick. The subsurface layer, to a depth of about 22 inches, is white sand. The subsoil extends to a depth of about 72 inches. It is sand. The upper 18 inches is very dark brown, and the lower 32 inches is mixed very dark brown and dark brown. Below this to a depth of 80 inches or more is light brownish gray fine sand.

Scranton soils are poorly drained. Typically, the surface layer is very dark gray fine sand about 7 inches thick. Below this is fine sand. The upper 15 inches is light gray and has patches of dark gray and very dark gray. The next 24 inches is dark gray and has patches of gray and light brownish gray. The lower part to a depth of 80 inches or more is grayish brown and has patches of light gray.

Lynn Haven soils are poorly drained. Typically, the surface layer is sand about 22 inches thick. The upper 8 inches is black, and the lower 14 inches is very dark gray. The subsurface layer is gray sand about 6 inches thick. The subsoil is sand. The upper 22 inches is very dark brown and dark brown. The next 14 inches is brown. The lower part to a depth of 80 inches or more is very dark grayish brown.

Of minor extent in this unit are Albany, Plummer, Ridgewood, Rutlege, and Sapelo soils.

Most areas of this unit are used for the commercial production of pine trees.

Soils of the Sloughs, Low Flatwoods, and Depressions

The soils in this group are poorly drained and very poorly drained and are nearly level. They occur throughout the county.

7. Scranton-Rutlege

Nearly level, very poorly drained and poorly drained soils that are sandy throughout and have a dark surface layer

This map unit consists of soils in sloughs and depressions. It occurs as several areas throughout the county. The largest area includes most of Tates Hell Swamp east of the Apalachicola River and west of the New River. Individual areas of this unit are blocky.

The landscape is nearly level and includes scattered areas of flatwoods. The natural vegetation consists mostly of slash pine, scattered cypress, sweetbay, titi, and other woody shrubs and grasses.

This map unit makes up about 92,300 acres, or about 26 percent of the total acreage. It is about 55 percent Scranton soils, 30 percent Rutlege soils, and 15 percent soils of minor extent.

Scranton soils are poorly drained or very poorly drained. Typically, the surface layer is very dark gray fine sand about 7 inches thick. Below this is fine sand. The upper 15 inches is light gray and has patches of dark gray and very dark gray. The next 24 inches is dark gray and has patches of gray and light brownish gray. The lower part to a depth of 80 inches or more is grayish brown and has patches of light gray.

Rutlege soils are very poorly drained. Typically, the surface layer is fine sand about 13 inches thick. The upper 6 inches is very dark brown, and the lower 7 inches is very dark gray. Below this is sand. The upper 21 inches is grayish brown. The next 24 inches is dark gray. The lower part to a depth of 80 inches or more is gray.

Of minor extent in this unit are Leon, Pamlico,

Pelham, Pickney, Plummer, Sapelo, Surrency, and Bonsai soils.

Most areas of this unit are used for the commercial production of pine trees or support natural vegetation.

8. Meadowbrook-Tooles-Harbeson

Nearly level, poorly drained and very poorly drained soils that have a loamy subsoil; some have limestone bedrock at a depth of 45 to 60 inches

This map unit consists of soils in depressions, low flatwoods, and sloughs and on the flood plains along the New River. It occurs as one small area along Cash Creek and as one large area extending northeast from 2 miles west of Carrabelle to the Liberty County line. Individual areas of this unit are elongated.

The landscape is nearly level. Slightly higher knolls are common along the New River. The natural vegetation consists mostly of Atlantic white-cedar, slash pine, cypress, sweetbay, swamp cyrilla, black titi, and various other woody shrubs.

This map unit makes up about 32,500 acres, or about 9 percent of the total acreage. It is about 55 percent Meadowbrook soils, 10 percent Tooles soils, 10 percent Harbeson soils, and 25 percent soils of minor extent.

Meadowbrook soils are poorly drained and very poorly drained. Typically, the surface layer is dark grayish brown sand about 4 inches thick. The subsurface layer, to a depth of about 48 inches, is sand. The upper 35 inches is mixed light brownish gray and dark grayish brown, and the lower 9 inches is light gray. The upper part of the subsoil is gray sandy loam about 16 inches thick. The lower part to a depth of 80 inches or more is light greenish gray sandy clay loam.

Tooles soils are poorly drained and very poorly drained. Typically, the surface layer is very dark grayish brown sand about 3 inches thick. The subsurface layer, to a depth of about 27 inches, is dark grayish brown and light gray sand. The subsoil is gray sandy clay loam about 23 inches thick. Soft, white limestone bedrock is at a depth of about 50 inches.

Harbeson soils are very poorly drained. Typically, the surface layer is very dark brown mucky loamy sand about 11 inches thick. The upper part of the subsurface layer is dark brown mucky sand about 28 inches thick. The next 9 inches is dark grayish brown sand. The lower part, to a depth of about 66 inches, is grayish brown sand. The upper part of the subsoil is greenish gray sandy loam about 9 inches thick. The lower part to a depth of 80 inches or more is dark greenish gray sandy clay loam.

Of minor extent in this unit are Albany, Chaires, Leon, Rutlege, Scranton, Surrency, and Bonsai soils.

Most areas of this unit are used for the commercial production of pine trees or support natural vegetation.

9. Pickney-Pamlico-Dorovan

Nearly level, very poorly drained soils; some are sandy throughout, some are organic and are underlain by sand, and some are organic throughout

This map unit consists of soils in large depressions, which generally occur just north of the coastal sand ridge and in Pickett Bay. The largest area is in Pickett Bay about 3 miles northwest of the Carrabelle city limits. Individual areas of this unit are blocky or elongated.

The landscape is nearly level. The natural vegetation is mostly black titi and swamp cyrilla, but sweetbay, pine, cypress, and other woody shrubs are scattered throughout the unit.

This map unit makes up about 13,400 acres, or about 4 percent of the total acreage. It is about 45 percent Pickney soils, 35 percent Pamlico soils, 12 percent Dorovan soils, and 8 percent soils of minor extent.

Pickney soils are very poorly drained. Typically, the surface layer is about 35 inches thick. It is black sand and has pockets of gray sand. The subsurface layer, to a depth of about 41 inches, is very dark brown sand. Below this to a depth of 80 inches or more is grayish brown and light brownish gray sand.

Pamlico soils are very poorly drained. Typically, the surface layer is very dark brown muck about 27 inches thick. Below this to a depth of 80 inches or more, in sequence downward, is black mucky sand, very dark grayish sand, and grayish brown sand.

Dorovan soils are very poorly drained. Typically, the surface layer is black muck about 68 inches thick. The subsurface layer to a depth of 80 inches or more is very dark gray muck.

Of minor extent in this unit are Lynn Haven, Meadowbrook, Plummer, Rutlege, Scranton, and Surrency soils.

Most areas of this unit support natural vegetation.

Soils of the River Flood Plains

The soils in this group are poorly drained and very poorly drained, are frequently flooded, and are nearly level. They lie entirely on the flood plains along the Apalachicola, Crooked, and Ochlockonee Rivers.

10. Pamlico-Pickney-Maurepas

Nearly level, very poorly drained, frequently flooded soils; some are organic and are underlain by sand, some are sandy throughout, and some are organic throughout

This map unit consists of soils on the flood plains

along small or medium-sized rivers. It occurs as three areas that parallel the Crooked and Ochlockonee Rivers. Individual areas are narrow and elongated.

The landscape is nearly level. Scattered small areas of slightly higher knolls and flatwoods occur throughout the unit. The natural vegetation is mostly cypress, sweetgum, Ogeechee tupelo, and red maple and an understory of grasses and herbaceous plants. Some areas are freshwater marshes that support scattered cypress.

This map unit makes up about 8,950 acres, or about 3 percent of the total acreage. It is about 40 percent Pamlico soils, 35 percent Pickney soils, 15 percent Maurepas soils, and 10 percent soils of minor extent.

Pamlico soils are very poorly drained. Typically, the surface layer is very dark brown muck about 46 inches thick. The subsurface layer, to a depth of about 68 inches, is very dark grayish brown mucky sand. Below this to a depth of 80 inches or more is grayish brown sand.

Pickney soils are very poorly drained. Typically, the surface layer is black fine sand about 13 inches thick. The subsurface layer, to a depth of about 35 inches, is very dark grayish brown sand. Below this to a depth of 80 inches or more is gray sand.

Maurepas soils are very poorly drained. Typically, the surface layer is dark brown mucky peat about 6 inches thick. Below this to a depth of 80 inches or more is very dark grayish brown muck.

Of minor extent in this unit are Dorovan, Meadowbrook, Plummer, Rutlege, and Scranton soils.

Most areas of this unit support natural vegetation and are managed for recreational uses and as wildlife habitat.

11. Chowan-Brickyard-Wehadkee

Nearly level, very poorly drained and poorly drained, frequently flooded soils that have clayey, loamy, and sandy layers; some have a buried organic layer

This map unit is on the forested flood plain along the Apalachicola River. The river separates the main flood plain from Forbes Island. The unit extends south from the Gulf and Liberty County lines to the farthest upriver fingerings of the tidal marshes, about 3 to 6 miles north of the city of Apalachicola. Individual areas are elongated.

The landscape is nearly level. Narrow, gently sloping or sloping, natural and dredge spoil levees lie along the banks of the river and its larger distributaries. The natural vegetation consists mainly of cypress and mixed hardwoods, including water tupelo, Ogeechee tupelo, black tupelo, cabbage palm, and Carolina water ash, and a variable understory of grasses, shrubs, and herbaceous plants.

This map unit makes up about 21,800 acres, or about 6 percent of the total acreage. It is about 46 percent Chowan soils, 23 percent Brickyard soils, 6 percent Wehadkee soils, and 25 percent soils of minor extent.

Chowan soils are very poorly drained. Typically, the surface layer is dark grayish brown silty clay loam about 5 inches thick. Below this, to a depth of about 18 inches, is grayish brown silt loam. The next 19 inches is black silty clay loam. Below this to a depth of 80 inches or more is a very dark grayish brown, buried organic layer.

Brickyard soils are very poorly drained. Typically, the surface layer is dark grayish brown silty clay about 4 inches thick. The subsoil, to a depth of about 28 inches, is grayish brown silty clay that has yellowish brown mottles. The next 17 inches is grayish brown silty clay loam. Below this to a depth of 80 inches or more is dark gray silty clay that contains 5 to 15 percent partially decomposed wood debris.

Wehadkee soils are poorly drained. Typically, the surface layer is brown loam about 3 inches thick. The subsoil extends to a depth of about 40 inches. The upper 13 inches is gray clay loam that has strong brown mottles. The lower 24 inches is gray sandy loam that has yellowish brown mottles and thin strata of sandy clay loam. The next 30 inches is light gray sand. Below this to a depth of 80 inches or more is gray fine sandy loam.

Of minor extent in this unit are Aquents and Kenner, Maurepaus, Meggett, Pelham, and Surrency soils.

Nearly all of the acreage in this unit supports natural vegetation and is managed for recreational uses and as wildlife habitat.

Soils of the Tidal Marshes

The soils in this group are very poorly drained and nearly level and are flooded by normal high tides. They are in coastal marshes and the lower riverine marshes. They have a high content of sulfur and may turn extremely acid if drained. The soils are mainly in coastal areas near Ochlockonee Bay, Alligator Harbor, the Carrabelle River, Yent Bayou, and the Coastal Islands. Other areas are along the lower reaches of the Apalachicola River and along the New River, the Crooked River, and the Jackson River.

12. Bohicket-Tisonia-Dirego

Nearly level, very poorly drained soils that are flooded by normal high tides; some are clayey throughout, and some have an organic layer over sand, clay, or loam

This map unit consists of soils in coastal and

estuarine marshes. The vegetation is dominantly black needlerush, saltgrass, marshhay cordgrass, saltmarsh cordgrass, and sawgrass.

This map unit makes up about 18,950 acres, or about 5 percent of the total acreage. It is about 37 percent Bohicket soils, 30 percent Tisonia soils, 15 percent Dirego soils, and 18 percent soils of minor extent.

Bohicket soils are very poorly drained. Typically, the surface layer is very dark gray silty clay about 23 inches thick. Below this to a depth of 80 inches or more is black silty clay.

Tisonia soils are very poorly drained. Typically, the surface layer is very dark grayish brown organic material about 26 inches thick. The next layer, to a depth of about 66 inches, is dark gray clay. Below this to a depth of 80 inches or more is gray and dark gray loamy sand and sandy clay loam.

Dirego soils are very poorly drained. Typically, the surface layer is very dark grayish brown muck about 35 inches thick. The upper part of the subsurface layer is very dark brown mucky sand about 12 inches thick. The lower part to a depth of 72 inches or more is very dark grayish brown sand.

Of minor extent in this unit are Bayvi, Brickyard, Chowan, Duckston, Kenner, Maurepas, and Rutlege soils.

Most areas of this unit support natural vegetation.

Detailed Soil Map Units

The map units on the detailed soil maps at the back of this survey represent the soils in the survey area. The map unit descriptions in this section, along with the soil maps, can be used to determine the suitability and potential of a soil for specific uses. They also can be used to plan the management needed for those uses. More information on each map unit, or soil, is given under the heading "Use and Management of the Soils."

Each map unit on the detailed soil maps represents an area on the landscape and consists of one or more soils for which the unit is named.

A symbol identifying the soil precedes the map unit name in the soil descriptions. Each description includes general facts about the soil and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer or of the substratum, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer or of the substratum. They also can differ in slope, stoniness, salinity, wetness, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Kershaw sand, 2 to 5 percent slopes, is a phase of the Kershaw series.

Some map units are made up of two or more major soils. These map units are called soil complexes or undifferentiated groups.

A *soil complex* consists of two or more soils in such an intricate pattern or in such small areas that they cannot be shown separately on the soil maps. The pattern and proportion of the soils are somewhat similar in all areas. Duckston-Bohicket-Corolla complex is an example.

An *undifferentiated group* is made up of two or more soils that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils in a mapped area are not uniform. An area can be made up of only one of the major soils, or it can be made up of all of them. Dirego and Bayvi soils, tidal, is an undifferentiated group in this survey area.

Most map units include small scattered areas of soils other than those for which the map unit is named. Some of these included soils have properties that differ substantially from those of the major soil or soils. Such differences could significantly affect use and management of the soils in the map unit. The included soils are identified in each map unit description. Some small areas of strongly contrasting soils are identified by a special symbol on the soil maps.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. The map unit "Beaches" is an example. Miscellaneous areas are shown on the soil maps. Some that are too small to be shown are identified by a special symbol on the soil maps.

Table 3 gives the acreage and proportionate extent of each map unit. Other tables (see "Summary of Tables") give properties of the soils and the limitations, capabilities, and potentials for many uses. The "Glossary" defines many of the terms used in describing the soils.

2—Albany fine sand. This somewhat poorly drained, nearly level soil is on low uplands and the higher ridges in the flatwoods. Slopes range from 0 to 2 percent. Individual areas are irregular in shape and range from 5 to 50 acres in size.

Typically, the surface layer is dark gray fine sand about 8 inches thick. The subsurface layer extends to a depth of about 50 inches. It is fine sand. The upper 14 inches is grayish brown and pale brown, and the lower 28 inches is light gray. The upper part of the subsoil is light brownish gray sandy loam about 12 inches thick. The lower part to a depth of 80 inches or more is light brownish gray sandy clay loam.

Included with this soil in mapping are small areas of Blanton, Leefield, Pelham, Plummer, Ridgewood, Sapelo, and Stilson soils and small areas of somewhat

poorly drained soils that are similar to the Leefield soils but do not have plinthite. The somewhat poorly drained Ridgewood and Leefield soils and the soils that are similar to the Leefield soils are in landscape positions similar to those of the Albany soil. The poorly drained Sapelo, Pelham, and Plummer soils are in slight depressions and on low flats. The moderately well drained Blanton and Stilson soils are on small ridges and knolls. Also included are soils that are similar to the Albany soil but have a thin layer that is stained with brown or yellow. These soils are in landscape positions similar to those of the Albany soil.

On 95 percent of the acreage mapped as Albany fine sand, Albany and similar soils make up 78 to 100 percent of the mapped areas.

The Albany soil has a seasonal high water table at a depth of 12 to 30 inches for 2 to 4 months in most years. The available water capacity is very low in the surface and subsurface layers and moderate in the subsoil. Permeability is rapid in the surface and subsurface layers and moderate in the subsoil. The content of organic matter is moderately low, and natural fertility is low.

Most areas are used for the production of pine trees. The natural vegetation consists of slash pine, longleaf pine, live oak, laurel oak, sweetgum, and dogwood and an understory of huckleberry, greenbrier, and wiregrass.

This soil is poorly suited to most crops because of periodic wetness and seasonal droughtiness. If the soil is cultivated, soil blowing is a hazard. Good management practices combined with the use of a well designed irrigation system can increase potential crop yields. Returning all crop residue to the soil and using a cropping system that includes grasses, legumes, or grass-legume mixtures help to maintain fertility and tilth. Soil blowing can be controlled by maintaining a good ground cover of close-growing plants, minimizing tillage, establishing windbreaks, and wind stripcropping.

This soil is moderately suited to pasture and hay. Proper applications of fertilizer and lime help deep-rooted plants, such as coastal bermudagrass and bahiagrass, to tolerate drought. Overgrazing results in deterioration of the plant cover and increases the extent of undesirable species. Proper stocking rates and pasture rotation help to keep the pasture in good condition.

Typically, this soil supports vegetation that is characteristic of the North Florida Flatwoods range site. If good management practices are applied, this site has the potential to produce significant amounts of creeping bluestem, lopsided indiangrass, chalky bluestem, and Curtis dropseed. If the range deteriorates because of poor management practices, the site is dominated by saw palmetto and wiregrass.

This soil is well suited to the production of pine trees. Potential productivity is high for slash pine. Slash pine grows best with an adequate supply of phosphorus. The major management concerns are the seasonal wetness and seasonal droughtiness, which increase the seedling mortality rate, restrict equipment use, and cause plant competition. Careful site preparation, such as chopping and bedding, removes debris, helps to control competing vegetation, and facilitates hand and mechanical planting. Using a logging system that leaves plant debris distributed over the site improves soil fertility. The trees respond well to applications of fertilizer.

This soil is only moderately suited to homesite development because of the seasonal wetness and the occasional droughtiness. It is only moderately suited to use as a site for small commercial buildings because of the wetness. Adding suitable fill material can raise the site to a level above the wetness. Because of the very rapid permeability, areas for onsite waste disposal should be carefully selected to prevent the contamination of shallow ground water. Homes should not be clustered together, and the disposal site should not be located adjacent to any body of water. On sites for septic tank absorption fields, mounding increases the depth to the seasonal high water table and thus helps to overcome the wetness. Mulching, applying fertilizer, and using an irrigation system help to establish lawn grasses and other small-seeded plants. The soil is moderately suited to use as a site for local roads and streets. Installing a drainage system and adding suitable fill material help to overcome the wetness.

If areas of this soil are developed for recreational uses, such as playgrounds, picnic areas, and paths or trails, stabilizing the sandy surface layer by adding topsoil or other material helps to prevent excessive erosion.

The capability subclass is IIIw. The woodland ordination symbol is 11W.

3—Beaches. Beaches consist of narrow strips of nearly level land areas along the Gulf of Mexico and adjacent bays. They formed in deposits of mixed sand and shell fragments. Individual areas range from less than 100 to more than 300 feet in width. As much as half of the beach can be flooded daily by high tides, and all of the beach can be flooded by storm tides. The most extensive areas of this unit are on St. Vincent Island, St. George Island, and Dog Island.

Beaches typically consist of loose, fine sand ranging from gray to white or sand that contains various quantities of broken shells throughout. In most areas the shell fragments are the size of sand grains, but in

some areas they are larger in some parts of the profile. Layers differ primarily in color or in shell content. Some profiles appear uniform throughout.

Included in mapping are small areas of Corolla, Duckston, and Hurricane soils. These soils are on the landward fringes of the map unit.

Beaches are covered daily with saltwater at high tides. They are susceptible to movement by the wind and tide. Many areas do not support vegetation, and the remaining areas are sparsely vegetated by salt-tolerant plants.

Beaches are not suitable for cultivation or for use as woodland.

Beaches are used intensively for recreation. Homes and commercial buildings have been built on the fringes of beaches in many places. Beaches are not suitable for homesite development, however, because of the frequent tidal flooding.

No capability subclass or woodland ordination symbol is assigned.

4—Dirego and Bayvi soils, tidal. These very poorly drained, nearly level soils are in gulf coast tidal marshes and in estuarine marshes along the lower reaches of the Apalachicola River. Individual areas are generally elongated along the gulf coast and are irregularly shaped or elongated in other places. They range from 3 to several thousand acres in size. They are about 50 percent Dirego soil and 40 percent Bayvi soil. Slopes are less than 1 percent.

Typically, the surface layer of the Dirego soil is very dark grayish brown muck about 35 inches thick. The upper part of the subsurface layer is very dark brown mucky sand about 12 inches thick. The lower part to a depth of 72 inches or more is very dark grayish brown sand.

Typically, the surface layer of the Bayvi soil is about 26 inches thick. The upper 8 inches is black mucky sand, and the lower 18 inches is very dark gray sand. The subsurface layer to a depth of 80 inches or more is gray sand that has light gray streaks and mottles.

Included with these soils in mapping are areas of very poorly drained soils that are similar to the Bayvi soil but have a dark surface layer less than 24 inches thick. Also included are areas of very poorly drained soils that are similar to the Dirego soil but have a sulfur content of less than 0.75 percent.

On 95 percent of the acreage mapped as Dirego and Bayvi soils, tidal, Bayvi, Dirego, and similar soils make up 80 to 100 percent of the mapped areas.

The Dirego and Bayvi soils have a water table at or above the surface throughout the year and are flooded daily by normal high tides. The available water capacity is very low in both soils. Permeability is rapid. The content of organic matter is high in the upper part of the Dirego soil and medium in the lower part. It is medium in the upper part of the Bayvi soil and low in the lower part. Natural fertility is low in both soils. Salinity is high. The Dirego soil contains more than 0.75 percent sulfur, mostly in the form of sulfides, within a depth of 40 inches.

In most areas the natural vegetation consists of black needlerush, marshhay cordgrass, and smooth cordgrass.

These soils are unsuitable for cultivated crops, pasture and hay, and the production of pine trees. They are generally not used for range.

These soils are unsuitable for homesite development, small commercial buildings, local roads and streets, and recreational uses because of the high salt content, the daily flooding, the wetness, the high sulfide content, and low strength. If drained, the Dirego soil is susceptible to extreme acidification because of the oxidation of sulfides.

The capability subclass is VIIIw. No woodland ordination symbol is assigned.

5—Aquents, nearly level. These poorly drained and somewhat poorly drained soils are in low landscape positions adjacent to rivers, coastal bays, and marshes and in shallow excavated areas. Slopes range from 0 to 2 percent. Individual areas are generally elongated and range from 3 to 30 acres in size.

These soils formed in recent fill of variable composition. They generally contain fragments of brick, oyster shells, woody material, and assorted recent human artifacts. Underlying layers of natural soils range in texture from sand to clay or are muck or mucky analogs. In some areas these soils formed in the subsoil and underlying layers where fill material has been excavated.

No one pedon is typical of these soils, but commonly they have a surface layer of dark brown sand about 22 inches thick that has many brick fragments and oyster shells. Below this is 14 inches of pale brown sand. The next 32 inches is a buried surface layer of light brownish gray sand. Below this to a depth of 80 inches or more is light gray sand.

Included with these soils in mapping are small areas of Bayvi, Bohicket, Corolla, Dirego, Duckston, Leon, Rutlege, Scranton, and Tisonia soils. The very poorly drained Bayvi, Bohicket, Dirego, and Tisonia soils are in the lower landscape positions in tidal marshes. The very poorly drained Rutlege soils are in the lower upland depressions and in drainageways. The poorly drained Duckston, Scranton, and Leon soils are in the flatwoods. The somewhat poorly drained Corolla soils are on low coastal ridges.

Most areas of the Aquents have been filled in for use as building sites. The vegetation consists of landscaping varieties or weed species that typically colonize abandoned sites in north Florida.

Present land use precludes the use of most areas of these soils for agriculture. Onsite investigation is needed to determine the suitability of the soils for most land uses. Seasonal wetness is a management concern affecting most land uses. A seasonal high water table is generally within a depth of 20 inches throughout the year, but it may be slightly above the surface during periods of unseasonably high rainfall.

No capability subclass or woodland ordination symbol is assigned.

6—Blanton fine sand, 0 to 5 percent slopes. This moderately well drained, nearly level or gently sloping soil is on upland ridges and knolls. Slopes range from 0 to 5 percent. Individual areas are irregular in shape and range from 3 to 50 acres in size.

Typically, the surface layer is gray fine sand about 6 inches thick. The subsurface layer extends to a depth of about 72 inches. It is fine sand. The upper 25 inches is light yellowish brown, the next 30 inches is very pale brown, and the lower 11 inches is light gray. The subsoil extends to a depth of 80 inches or more. It is light yellowish brown sandy loam that has many light gray, strong brown, and yellowish red mottles.

Included with this soil in mapping are small areas of Albany, Mandarin, Ortega, Ridgewood, and Stilson soils. The moderately well drained Stilson and Ortega soils are in landscape positions similar to those of the Blanton soil. The somewhat poorly drained Albany, Mandarin, and Ridgewood soils are on the lower side slopes and in slight depressions. Also included are deep, sandy soils that have thin loamy bands below a depth of 40 inches and soils that have a thin layer above the subsoil that is stained with dark brown. These soils are in landscape positions similar to those of the Blanton soil or are on the slightly higher ridges.

On 80 percent of the acreage mapped as Blanton fine sand, 0 to 5 percent slopes, Blanton and similar soils make up 75 to 93 percent of the mapped areas.

The Blanton soil has a seasonal high water table at a depth of 48 to 72 inches for 5 months in most years. The water table can be perched above the subsoil for short periods after heavy rains during any part of the year. The available water capacity is moderate in the subsoil and low or very low in the rest of the profile. Permeability is rapid in the surface and subsurface layers and moderate or moderately rapid in the subsoil. The content of organic matter and natural fertility are low.

Most areas are used for the production of pine trees. The natural vegetation consists of longleaf pine and live oak and an understory of wiregrass, ferns, huckleberry, and scattered saw palmetto.

This soil is poorly suited to most cultivated crops because of droughtiness and the rapid leaching of plant nutrients. If the soil is cultivated, soil blowing is a hazard. Good management practices combined with the use of a well designed irrigation system can increase crop yields. Returning all crop residue to the soil and using a cropping system that includes grasses, legumes, or grass-legume mixtures help to maintain fertility and tilth. Soil blowing can be controlled by maintaining a good ground cover of close-growing plants, minimizing tillage, establishing windbreaks, and wind stripcropping.

This soil is moderately suited to pasture and hay. The major management concerns are droughtiness and the rapid leaching of plant nutrients. Proper applications of fertilizer and lime help deep-rooted plants, such as coastal bermudagrass and bahiagrass, to tolerate drought. Overgrazing results in deterioration of the plant cover and increases the extent of undesirable species. Proper stocking rates and pasture rotation help to keep the pasture in good condition.

Typically, this soil supports vegetation that is characteristic of the Longleaf Pine-Turkey Oak Hills range site. The natural fertility of this site is low because of the rapid movement of plant nutrients and water through the soil. Forage production is low. The desirable forage includes creeping bluestem, chalky bluestem, indiangrass, and other varieties of bluestem.

This soil is moderately suited to the production of pine trees. The main management concern is the droughtiness, which increases the seedling mortality rate. Potential productivity is medium for slash pine and longleaf pine. Site preparation, such as chopping and applying herbicide, helps to control competing vegetation and facilitates mechanical planting. Using a harvesting system that leaves plant debris distributed over the site helps to maintain the content of organic matter. The trees respond well to applications of fertilizer.

This soil is well suited to use as a site for homes, small commercial buildings, and local roads and streets. Onsite waste disposal systems should be established on the contour. Reducing the slope by cutting and filling minimizes water erosion on homesites and in areas adjacent to roads. Mulching, applying fertilizer, and using an irrigation system help to establish lawn grasses and other small-seeded plants.

If areas of this soil are developed for recreational uses, such as playgrounds, picnic areas, and paths or trails, stabilizing the sandy surface layer by adding

suitable topsoil or some other material helps to prevent excessive erosion.

The capability subclass is IIIs. The woodland ordination symbol is 10S.

7—Bohicket and Tisonia soils, tidal. These very poorly drained, nearly level soils are in gulf coast tidal marshes and in estuarine marshes along the lower reaches of the Apalachicola River and along other estuarine creeks, streams, and rivers. Slopes are less than 1 percent. Individual areas of these soils are generally elongated along the gulf coast and are elongated or irregularly shaped in other places. They range from 3 to several thousand acres in size. They are about 45 percent Bohicket soil and 40 percent Tisonia soil.

Typically, the surface layer of the Bohicket soil is very dark gray silty clay about 23 inches thick. Below this to a depth of 80 inches or more is black silty clay.

Typically, the surface layer of the Tisonia soil is very dark grayish brown mucky peat about 4 inches thick over 22 inches of dark grayish brown muck. The next layer, to a depth of about 66 inches, is dark gray clay. Below this to a depth of 80 inches or more is gray loamy sand stratified with dark gray sandy clay loam.

Included with these soils in mapping are small areas of the very poorly drained Brickyard, Chowan, Dirego, and Maurepas soils. Dirego and Maurepas soils are in landscape positions similar to those of the Bohicket and Tisonia soils. Brickyard and Chowan soils are on narrow, natural levees. Also included are very poorly drained soils that are similar to the Tisonia soil but have organic soil material more than 51 inches thick. These soils are in landscape positions similar to those of the Tisonia soil.

On 95 percent of the acreage mapped as Bohicket and Tisonia soils, tidal, Bohicket, Tisonia, and similar soils make up 77 to 100 percent of the mapped areas.

The Bohicket and Tisonia soils have a water table at or above the surface throughout the year, and they are flooded daily by normal high tides. The available water capacity is high. Permeability is very slow. The content of organic matter, natural fertility, and salinity are high. The soils contain more than 0.75 percent sulfur, mostly in the form of sulfides, within a depth of 40 inches.

In most areas the natural vegetation consists of black needlerush, marshhay cordgrass, and smooth cordgrass.

These soils are unsuitable for cultivated crops, pasture and hay, and the production of pine trees. They are generally not used for range.

These soils are unsuitable for homesite development, small commercial buildings, local roads and streets, and recreational uses because of the high salt content, the flooding, the wetness, the high sulfide content, and low strength. If drained, the soils are susceptible to extreme acidification because of the oxidation of sulfides.

The capability subclass is VIIIw. No woodland ordination symbol is assigned.

8—Ridgewood sand, 0 to 5 percent slopes. This somewhat poorly drained, nearly level or gently sloping soil is on slightly convex knolls in the uplands and in the flatwoods. Slopes range from 0 to 5 percent. Individual areas are irregular in shape and range from 5 to 150 acres in size.

Typically, the surface layer is gray sand about 5 inches thick. Below this to a depth of 80 inches or more is sand. The upper 29 inches is brownish yellow and has light gray mottles in the lower part. The next 30 inches is very pale brown and has strong brown and brownish yellow mottles. The lower 16 inches or more is light brownish gray and brown.

Included with this soil in mapping are small areas of Albany, Hurricane, Ortega, and Scranton soils. The somewhat poorly drained Albany and Hurricane soils are in landscape positions similar to those of the Ridgewood soil. The moderately well drained Ortega soils are on the slightly higher convex knolls or ridges. The poorly drained Scranton soils are in low flats or slight depressions.

On 95 percent of the acreage mapped as Ridgewood sand, 0 to 5 percent slopes, Ridgewood and similar soils make up 80 to 99 percent of the mapped areas.

The Ridgewood soil has a seasonal high water table at a depth of 24 to 42 inches for 2 to 4 months in most years. The water table is at a depth of 15 to 24 inches for less than 3 weeks in some years. The available water capacity is low in the surface layer and very low or low in the rest of the profile. Permeability is rapid. The content of organic matter and natural fertility are low.

Most areas are used for commercial production of pine trees. The natural vegetation consists of slash pine, longleaf pine, and scattered oak and an understory of wiregrass and scattered saw palmetto.

This soil is poorly suited to most cultivated crops because of droughtiness and the rapid leaching of plant nutrients. If the soil is cultivated, soil blowing is a hazard. Good management practices combined with the use of a well designed irrigation system can increase crop yields. Returning all crop residue to the soil and using a cropping system that includes grasses, legumes, or grass-legume mixtures help to maintain fertility and tilth. Soil blowing can be controlled by maintaining a good ground cover of close-growing plants, minimizing tillage, establishing windbreaks, and wind stripcropping.

This soil is moderately suited to pasture and hay. Proper applications of fertilizer and lime help deep-rooted plants, such as coastal bermudagrass and bahiagrass, to tolerate drought. Overgrazing results in deterioration of the plant cover and increases the extent of undesirable species. Proper stocking rates and pasture rotation help to keep the pasture in good condition.

Typically, this soil supports vegetation that is characteristic of the North Florida Flatwoods range site. If good grazing management practices are applied, this site has the potential to produce significant amounts of creeping bluestem, lopsided indiangrass, chalky bluestem, and Curtis dropseed. If the range deteriorates because of poor management practices, the site is dominated by saw palmetto and wiregrass.

This soil is well suited to the production of pine trees. Potential productivity is medium or high for slash pine and longleaf pine. Slash pine grows best with an adequate supply of phosphorus. The major management concerns are the seasonal wetness and seasonal droughtiness, which increase the seedling mortality rate, restrict equipment use, and cause plant competition. Careful site preparation, such as chopping and bedding, removes debris, helps to control competing vegetation, and facilitates hand and mechanical planting. Using a logging system that leaves plant debris distributed over the site improves soil fertility. The trees respond well to applications of fertilizer.

This soil is only moderately suited to homesite development because of the seasonal wetness and the occasional droughtiness. It is only moderately suited to use as a site for small commercial buildings because of the wetness. Adding suitable fill material can raise the site to a level above the wetness. Because of the rapid permeability, areas for onsite waste disposal should be carefully selected to prevent the contamination of ground water. Homes should not be clustered together, and the disposal site should not be located adjacent to any body of water. On sites for septic tank absorption fields, mounding increases the depth to the seasonal high water table and thus helps to overcome the wetness. Mulching, applying fertilizer, and using an irrigation system help to establish lawn grasses and other small-seeded plants. The soil is moderately suited to local roads and streets. Installing a drainage system and adding suitable fill material help to overcome the wetness.

If areas of this soil are developed for recreational uses, such as playgrounds, picnic areas, and paths or trails, stabilizing the sandy surface layer by adding suitable topsoil or some other material helps to prevent excessive erosion.

The capability subclass is IVs. The woodland ordination symbol is 9S.

9—Chaires sand. This poorly drained, nearly level soil is on low knolls in the flatwoods. Slopes range from 0 to 2 percent. Individual areas are irregular in shape and range from 5 to 200 acres in size.

Typically, the surface layer is dark gray sand about 6 inches thick. The subsurface layer, to a depth of about 14 inches, is light brownish gray sand. The upper part of the subsoil is very dark brown and dark brown sand about 10 inches thick. The next part is light brownish gray sand about 9 inches thick. The next 23 inches is gray sandy loam and sandy clay loam. The lower part of the subsoil to a depth of 80 inches or more is greenish gray and bluish gray sandy clay loam.

Included with this soil in mapping are small areas of Leon, Meadowbrook, Rutlege, Scranton, and Tooles soils. The poorly drained Leon, Meadowbrook, Scranton, and Tooles soils are in landscape positions similar to those of the Chaires soil. The very poorly drained Scranton and Meadowbrook soils are in sloughs. The very poorly drained Rutlege soils are in drainageways and on low flats.

On 80 percent of the acreage mapped as Chaires sand, Chaires and similar soils make up 74 to 92 percent of the mapped areas.

The Chaires soil has a seasonal high water table at a depth of 6 to 12 inches for 1 to 3 months in most years. The water table recedes to a depth of 10 to 40 inches during dry periods. The available water capacity is very low in the surface and subsurface layers, low in the upper part of the subsoil, and moderate in the lower part of the subsoil. Permeability is rapid in the surface and subsurface layers and moderately slow or slow in the subsoil. The content of organic matter is moderately low, and natural fertility is low.

Most areas are used for the production of pine trees. The natural vegetation consists of longleaf pine, slash pine, saw palmetto, gallberry, waxmyrtle, wiregrass, running oak, black titi, and fetterbush lyonia.

This soil is poorly suited to most cultivated crops because of the wetness and the low fertility. The number of adapted crops that can be grown is limited unless intensive management practices are applied. A water-control system removes excess water during wet periods and provides for surface irrigation during dry periods. Row crops can be rotated with close-growing, soil-improving crops. Incorporating crop residue, including that of soil-improving crops, into the soil increases the content of organic matter. Seedbed preparation, including bedding of rows, reduces the rate of seedling mortality caused by wetness. Applications of fertilizer and lime can increase crop yields.

This soil is well suited to pasture and hay. Water-control measures reduce surface wetness. Applications of fertilizer and the proper selection of adapted grasses and legumes help to maximize yields. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition.

Typically, this soil supports vegetation that is characteristic of the North Florida Flatwoods range site. If good management practices are applied, this site has the potential to produce significant amounts of creeping bluestem, lopsided indiangrass, chalky bluestem, and Curtis dropseed. If the range deteriorates because of poor management practices, the site is dominated by saw palmetto and wiregrass.

This soil is moderately suited to the production of pine trees. It is limited mainly by the seasonal wetness and seasonal droughtiness, which can increase the seedling mortality rate, restrict the use of equipment, and cause plant competition. Potential productivity is medium for slash pine and longleaf pine. Site preparation, such as chopping, burning, and bedding, removes debris, minimizes plant competition, facilitates planting, and reduces the seedling mortality rate. Using special equipment, such as rubber-tired or crawler machinery, and harvesting only during dry periods minimize soil compaction and root damage during thinning activities. Using a harvesting system that leaves plant debris distributed over the site helps to maintain the content of organic matter. The trees respond well to applications of fertilizer.

This soil is poorly suited to use as a site for homes, local roads and streets, and small commercial buildings because of the wetness. On sites for septic tank absorption fields, mounding increases the depth to the seasonal high water table and thus helps to overcome the wetness. If adequate outlets are available, a drainage system can be installed. Installing a drainage system and adding suitable fill material help to overcome the wetness. Landscaping can be improved by installing a drainage system, using an irrigation system, and selecting plant species that tolerate both seasonal wetness and droughtiness.

If areas of this soil are developed for recreational uses, such as playgrounds, picnic areas, and paths or trails, stabilizing the sandy surface layer by adding suitable topsoil or some other material helps to prevent excessive erosion and helps to overcome the wetness.

The capability subclass is IVw. The woodland ordination symbol is 10W.

10—Corolla sand, 0 to 5 percent slopes. This somewhat poorly drained, nearly level or gently sloping soil is on flats and small dunes and in swales on large dunes along the gulf coast beaches. Slopes range from 0 to 5 percent but are generally less than 3 percent. Individual areas are narrow and elongated and range from 5 to 100 acres in size.

Typically, the surface layer is light gray sand about 6 inches thick. The next layer is sand. The upper 18 inches is very pale brown, and the lower 8 inches is light gray. The next 2 inches is a buried surface layer of grayish brown sand. Below this to a depth of 80 inches or more is light gray sand.

Included with this soil in mapping are small areas of Beaches and small areas of Duckston, Hurricane, Mandarin, and Newhan soils. The somewhat poorly drained Hurricane and Mandarin soils are on relict coastal dunes and ridges that are more stable than those on which the Corolla soil occurs. Beaches are poorly drained and are near the coastal margin. The poorly drained Duckston soils are on low flats and in swales. The excessively drained Newhan soils are on high coastal dunes and ridges.

On 95 percent of the acreage mapped as Corolla sand, 0 to 5 percent slopes, Corolla and similar soils make up 77 to 100 percent of the mapped areas.

The Corolla soil has a seasonal high water table at a depth of 18 to 36 inches for 3 to 6 months in most years. Flooding can occur during severe coastal storms. The available water capacity is low. Permeability is very rapid. Natural fertility and the content of organic matter are low.

Many areas are used for homesite development. In most areas the natural vegetation consists of slash pine, longleaf pine, and live oak and an understory of waxmyrtle and scattered saw palmetto. Many of the areas nearest to the gulf coast do not have trees and are sparsely vegetated with sea oats and other beach grasses and scattered shrubs.

This soil is generally unsuited to cultivated crops, pasture, and the production of timber because of the low level of fertility and the proximity to the coast.

This soil is poorly suited to use as a site for homes, small commercial buildings, sewage lagoons, and sanitary landfills. It is moderately suited to use as a site for local roads and streets. The major limitations are seasonal droughtiness and wetness, the hazard of flooding, and the very rapid permeability. On sites for septic tank absorption fields, the depth to the high water table can be increased by constructing a mound of suitable fill material. On homesites, adding suitable fill material helps to overcome the wetness. Because of the very rapid permeability and the proximity to the coast, the effluent from septic systems can pollute ground water. Only low-density development is recommended. Mulching, applying fertilizer, and using an irrigation system help to establish lawn grasses and other small-seeded plants. For any kind of development, care

should be taken to protect the natural vegetation, which helps to control erosion caused by coastal winds. Plants that tolerate salt and drought should be selected for use in landscaping.

If areas of this soil are developed for recreational uses, such as playgrounds, picnic areas, and paths or trails, stabilizing the sandy surface layer by adding suitable topsoil or some other material helps to prevent excessive erosion. Access walkways should be used to limit foot traffic in areas where the natural vegetation stabilizes the surface.

The capability subclass is VIIs. No woodland ordination symbol is assigned.

11—Dorovan-Pamlico complex, depressional. These very poorly drained, nearly level soils are in depressions and poorly defined drainageways. Slopes range from 0 to 2 percent. Individual areas of these soils are irregular in shape and range from 10 to 500 acres in size. They are about 55 percent Dorovan soil and 30 percent Pamlico soil.

Typically, the surface layer of the Dorovan soil is black muck about 68 inches thick. The subsurface layer to a depth of 80 inches or more is very dark gray muck.

Typically, the surface layer of the Pamlico soil is very dark brown muck about 7 inches thick. The subsurface layer is dark brown muck about 31 inches thick. Below this to a depth of 80 inches or more is dark grayish brown and grayish brown fine sand.

Included with these soils in mapping are small areas of Lynn Haven, Pickney, Rutlege, and Scranton soils. Also included are soils that are similar to the Pamlico soil but have a loamy substratum. The very poorly drained Pickney, Rutlege, and Scranton soils are in the slightly higher landscape positions. The poorly drained Lynn Haven and Scranton soils are on slight knolls and ridges and in areas near the edges of the map unit.

On 80 percent of the acreage mapped as Dorovan-Pamlico complex, depressional, Dorovan, Pamlico, and similar soils make up 79 to 100 percent of the mapped areas.

The Dorovan and Pamlico soils have a seasonal high water table ponded on the surface or within a depth of 24 inches for 3 to 6 months in most years. The available water capacity and the content of organic matter are very high in both soils. Permeability ranges from moderate to rapid. Natural fertility is high.

In most areas the natural vegetation consists of blackgum, cypress, sweetbay, swamp tupelo, black titi, and scattered slash pine.

These soils are unsuitable for crops, pasture and hay, and the production of pine trees. They also are unsuited to use as sites for homes, small commercial buildings, and local roads and streets. The ponded seasonal high water table, a lack of suitable drainage outlets, and low strength are limitations. The soils are generally not used for range. They are unsuitable for recreational uses, such as playgrounds, picnic areas, and paths or trails, because of the ponded seasonal high water table and the lack of suitable outlets.

The capability subclass is VIIw. The woodland ordination symbol is 7W for the Dorovan soil and 4W for the Pamlico soil.

12—Lynchburg loamy fine sand. This somewhat poorly drained, nearly level soil is on low ridges between streams and along stream banks. Slopes range from 0 to 3 percent. Individual areas are irregularly shaped or elongated and range from 3 to 30 acres in size.

Typically, the surface layer is dark gray loamy fine sand about 6 inches thick. The subsurface layer is 7 inches of pale brown loamy fine sand. The subsoil extends to a depth of 80 inches or more. In sequence downward, it is 15 inches of light yellowish brown sandy clay loam and sandy clay that has reddish yellow, brownish yellow, and light brownish gray mottles; 22 inches of grayish brown sandy clay that has brownish yellow, yellowish red, and strong brown mottles; 19 inches of olive gray sandy clay loam that has many light gray, olive yellow, yellowish brown, strong brown, yellowish red, and red mottles; and 11 inches or more of light gray clay that has yellowish red and red mottles.

Included with this soil in mapping are small areas of Leefield, Pelham, and Stilson soils and soils that are similar to the Lynchburg soil but have less than 35 percent clay in the upper 20 inches of the subsoil. The moderately well drained Stilson soils are on the slightly higher ridges. The somewhat poorly drained Leefield soils are in landscape positions similar to those of the Lynchburg soil. The poorly drained Pelham soils are in swales, nearer to the stream channels than the Lynchburg soil.

On 80 percent of the acreage mapped as Lynchburg loamy fine sand, Lynchburg and similar soils make up 75 to 100 percent of the mapped areas.

The Lynchburg soil has a seasonal high water table at a depth of 12 to 30 inches for 3 to 6 months each year. The available water capacity is low in the surface layer and moderate in the subsoil. Permeability is rapid in the surface layer and moderately slow in the subsurface layer and the subsoil. The content of organic matter is moderate or moderately low, and natural fertility is medium.

Most areas are used for the production of pine trees. The natural vegetation consists of slash pine, longleaf pine, live oak, laurel oak, sweetgum, and dogwood and

an understory of saw palmetto, blackberry, and wiregrass.

This soil is well suited to most cultivated crops, although periodic wetness occurs in most years. Good management practices help to maintain fertility and tilth and increase crop yields. Good management practices include returning all crop residue to the soil and using a cropping system that includes grasses, legumes, or grass-legume mixtures.

This soil is moderately suited to pasture plants and hay crops, such as coastal bermudagrass, bahiagrass, and legumes. Controlled grazing maintains the vigor of the plants. Proper stocking rates and pasture rotation help to keep the pasture in good condition.

Typically, this soil supports vegetation that is characteristic of the North Florida Flatwoods range site. If good management practices are applied, this site has the potential to produce significant amounts of creeping bluestem, lopsided indiangrass, chalky bluestem, and Curtis dropseed. If the range deteriorates, the site is dominated by saw palmetto and wiregrass.

This soil is well suited to the production of pine trees. Potential productivity is medium or high for slash pine and loblolly pine and low or medium for longleaf pine. Loblolly pine and slash pine grow best with an adequate supply of phosphorus. The major management concerns are the seasonal wetness, restricted equipment use, and plant competition. Careful site preparation, such as chopping and bedding, removes debris, helps to control competing vegetation, and facilitates hand and mechanical planting. Using a logging system that leaves plant debris distributed over the site improves soil fertility. The trees respond well to applications of fertilizer.

This soil is poorly suited to use as a site for homes, sanitary facilities, and small commercial buildings because of the wetness. It is moderately suited to use as a site for local roads and streets. Installing a drainage system and adding suitable fill material to elevate roadbeds help to overcome the wetness. Properly designing sewage lagoons and landfills helps to prevent the contamination of ground water and surrounding streams. Mounding the septic tank absorption field helps to maintain the system above the seasonal high water table. Enlarging the absorption field helps to compensate for the slow permeability of the soil. The soil is moderately suited to lawns and landscaping. Applications of fertilizer help to establish lawn grasses and other small-seeded plants.

If areas of this soil are developed for recreational uses, such as playgrounds, picnic areas, and paths or trails, installing a drainage system or adding suitable fill material can minimize the wetness.

The capability subclass is IIw. The woodland ordination symbol is 12W.

13—Hurricane sand. This somewhat poorly drained, nearly level soil is on low coastal ridges and slight knolls in the flatwoods. Slopes range from 0 to 3 percent. Individual areas are elongated or irregularly shaped and range from 5 to 100 acres in size.

Typically, the surface layer is sand about 7 inches thick. The upper 3 inches is gray, and the lower 4 inches is brown. The subsurface layer, to a depth of about 55 inches, is sand. The upper 17 inches is brownish yellow, the next 10 inches is light yellowish brown, and the lower 21 inches is white. The subsoil, to a depth of about 76 inches, is sand. The upper 13 inches is brown, and the lower 8 inches is dark brown. Below this to a depth of 80 inches or more is pinkish gray sand.

Included with this soil in mapping are small areas of Corolla, Leon, Mandarin, Resota, and Ridgewood soils. The poorly drained Leon soils are in low swales and on flats. The somewhat poorly drained Ridgewood, Mandarin, and Corolla soils are in landscape positions similar to those of the Hurricane soil. The moderately well drained Resota soils are on the higher ridges.

On 95 percent of the acreage mapped as Hurricane sand, Hurricane and similar soils make up 82 to 100 percent of the mapped areas.

The Hurricane soil has a seasonal high water table at a depth of 24 to 42 inches for 2 to 4 months in most years. The water table can rise to a depth of 15 to 24 inches for brief periods after heavy rains. The available water capacity is low. Permeability is rapid or very rapid. The content of organic matter and natural fertility are low.

Most areas are used for the production of pine trees. The natural vegetation consists of slash pine, longleaf pine, and scattered oak and an understory of saw palmetto, gallberry, and wiregrass.

This soil is poorly suited to most cultivated crops because of droughtiness and the rapid leaching of plant nutrients. If the soil is cultivated, soil blowing is a hazard. Good management practices combined with the use of a well designed irrigation system can increase crop yields. Returning crop residue to the soil and using a cropping system that includes grasses, legumes, or grass-legume mixtures help to maintain fertility and tilth. Soil blowing can be controlled by maintaining a good ground cover of close-growing plants, minimizing tillage, establishing windbreaks, and wind stripcropping.

This soil is moderately suited to pasture and hay. Proper applications of fertilizer and lime help deep-rooted plants, such as coastal bermudagrass and bahiagrass, to tolerate drought. Overgrazing results in

deterioration of the plant cover and increases the extent of undesirable species. Proper stocking rates and pasture rotation help to keep the pasture in good condition.

Typically, this soil supports vegetation that is characteristic of the North Florida Flatwoods range site. If good management practices are applied, this site has the potential to produce significant amounts of creeping bluestem, lopsided indiangrass, chalky bluestem, and Curtis dropseed. If the range deteriorates because of poor management practices, the site is dominated by saw palmetto and wiregrass.

This soil is well suited to the production of pine trees. Potential productivity is medium for slash pine and longleaf pine. Slash pine grows best with an adequate supply of phosphorus. The major management concerns are the seasonal wetness and seasonal droughtiness, which increase the seedling mortality rate, restrict equipment use, and cause plant competition. Careful site preparation, such as chopping and bedding, removes debris, helps to control competing vegetation, and facilitates hand and mechanical planting. Using a logging system that leaves plant debris distributed over the site improves soil fertility. The trees respond well to applications of fertilizer.

This soil is only moderately suited to homesite development because of the seasonal wetness and the occasional droughtiness. It is only moderately suited to use as a site for small commercial buildings and local roads and streets because of the wetness. Adding suitable fill material can raise the site to a level above the wetness. Installing a drainage system and adding suitable fill material to elevate roadbeds help to overcome the wetness on sites for local roads and streets. Because of the rapid or very rapid permeability, areas for onsite waste disposal should be carefully selected to prevent the contamination of ground water. Homes should not be clustered together, and the disposal site should not be located adjacent to any body of water. Properly designing sewage lagoons and landfills helps to prevent seepage and the contamination of ground water. On sites for septic tank absorption fields, mounding increases the depth to the seasonal high water table. Mulching, applying fertilizer, and using an irrigation system help to establish lawn grasses and other small-seeded plants.

If areas of this soil are developed for recreational uses, such as playgrounds, picnic areas, and paths or trails, stabilizing the sandy surface layer by adding suitable topsoil or some other material helps to prevent excessive erosion.

The capability subclass is IIIw. The woodland ordination symbol is 10W.

14—Harbeson mucky loamy sand, depressional. This very poorly drained, nearly level soil is in broad, poorly defined drainageways and in depressions. Individual areas are rounded or elongated and range from 50 to 300 acres in size. Slopes are generally less than 1 percent.

Typically, the surface layer is very dark brown mucky loamy sand about 11 inches thick. The subsurface layer extends to a depth of about 66 inches. The upper 28 inches is dark brown mucky sand, the next 9 inches is dark grayish brown sand, and the lower 18 inches is grayish brown sand. The upper part of the subsoil is greenish gray sandy loam about 9 inches thick. The lower part to a depth of 80 inches or more is dark greenish gray sandy clay loam.

Included with this soil in mapping are small areas of Bonsai, Meadowbrook, Pickney, Pamlico, and Rutlege soils and soils that are similar to the Harbeson soil but have a loamy subsoil within a depth of 40 inches. These included soils are very poorly drained. They are in landscape positions similar to those of the Harbeson soil.

On 90 percent of the acreage mapped as Harbeson mucky loamy sand, depressional, Harbeson and similar soils make up 76 to 100 percent of the mapped areas.

The Harbeson soil has a seasonal high water table at or above the surface for 4 months or more during most years. The available water capacity is very high in the surface layer, low in the subsurface layer, and moderate or high in the subsoil. Permeability is moderately rapid or rapid in the surface and subsurface layers and moderate in the subsoil. The content of organic matter is high in the surface layer, moderate in the subsurface layer, and low in the subsoil. Natural fertility is high.

Most areas support natural vegetation, which consists of Atlantic white-cedar, cypress, sweetbay, sweetgum, slash pine, red maple, and Carolina water ash and an understory of St Johnswort, sedges, greenbrier, and pitcherplant.

This soil is poorly suited to cultivated crops because of the wetness. The number of adapted crops that can be grown is limited unless intensive management practices are applied. A water-control system removes excess water during wet periods. Incorporating crop residue, including that of soil-improving crops, into the soil helps to maintain the content of organic matter. Seedbed preparation, including bedding of rows, helps to overcome the wetness. Applications of fertilizer and lime can increase crop yields.

This soil is poorly suited to pasture and hay. A drainage system can remove excess water during wet periods. Applications of fertilizer and the proper selection of adapted grasses and legumes help to

maximize yields. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition. The soil is generally not used for range or the production of pine trees.

This soil is poorly suited to use as a site for homes, small commercial buildings, and local roads and streets because of the wetness. On sites for septic tank absorption fields, mounding increases the depth to the seasonal high water table and thus helps to overcome the wetness. If adequate outlets are available, a drainage system can be installed. Installing a drainage system and adding suitable fill material to elevate roadbeds and building sites can help to overcome the wetness. Landscaping can be improved by installing a drainage system and selecting plants that tolerate wetness.

If areas of this soil are developed for recreational uses, such as playgrounds, picnic areas, and paths or trails, additions of suitable topsoil can help to overcome the wetness.

The capability subclass is VIw. The woodland ordination symbol is 6W.

15—Ortega fine sand, 0 to 5 percent slopes. This moderately well drained, nearly level or gently sloping soil is on side slopes or in concave areas in the sandy uplands. Slopes range from 0 to 5 percent. Individual areas are irregular in shape and range from 10 to 500 acres in size.

Typically, the surface layer is grayish brown fine sand about 5 inches thick. Below this to a depth of 80 inches or more is fine sand. The upper 38 inches is brownish yellow. The next 20 inches is very pale brown and has light gray and strong brown mottles. The lower 17 inches or more is light gray and has strong brown and reddish yellow mottles.

Included with this soil in mapping are small areas of Hurricane, Kershaw, Resota, and Ridgewood soils. The moderately well drained Resota soils are in landscape positions similar to those of the Ortega soil. The excessively drained Kershaw soils are on high ridges. The somewhat poorly drained Ridgewood and Hurricane soils are in slight depressions and low swales.

On 80 percent of the acreage mapped as Ortega fine sand, 0 to 5 percent slopes, Ortega and similar soils make up 75 to 89 percent of the mapped areas.

The Ortega soil has a seasonal high water table at a depth of 60 to 72 inches for as long as 6 months in most years. The water table is at a depth of 42 to 60 inches for 1 to 3 months in most years during periods of heavy rainfall. The available water capacity is low in the surface layer and very low in the underlying material. Permeability is rapid. The content of organic matter and natural fertility are low.

Most areas are used for the production of pine trees. The natural vegetation consists of sand pine, longleaf pine, and turkey oak and an understory of wiregrass and scattered saw palmetto.

This soil is poorly suited to most crops because of droughtiness and the rapid leaching of plant nutrients. If the soil is cultivated, soil blowing is a hazard. Applying fertilizer and using a well designed irrigation system can increase crop yields. Returning all crop residue to the soil and using a cropping system that includes grasses, legumes, or grass-legume mixtures help to maintain fertility and tilth. Soil blowing can be controlled by maintaining a good ground cover of close-growing plants, minimizing tillage, establishing windbreaks, and wind stripcropping.

This soil is moderately suited to pasture and hay. The restricted available water capacity is a limitation. Proper applications of fertilizer and lime help deep-rooted plants, such as coastal bermudagrass and bahiagrass, to tolerate drought. Overgrazing results in deterioration of the plant cover and increases the extent of undesirable species. Proper stocking rates and pasture rotation help to keep the pasture in good condition.

Typically, this soil supports vegetation that is characteristic of the Longleaf Pine-Turkey Oak Hills range site. The natural fertility of this site is low because of the rapid movement of plant nutrients and water through the soil. Forage production is low. The desirable forage includes creeping bluestem, chalky bluestem, lopsided indiangrass, and other varieties of bluestem.

This soil is moderately suited to the production of pine trees. It is limited mainly by the droughtiness, which increases the seedling mortality rate and retards growth. Potential productivity is medium for longleaf pine and slash pine. Using special nursery stock that is larger than usual or that is containerized reduces the seedling mortality rate. Using a harvesting system that leaves plant debris distributed over the site helps to maintain the content of organic matter.

This soil is well suited to use as a site for homes, small commercial buildings, and local roads and streets. It is poorly suited to sewage lagoons and landfills because of seepage. If the soil is used for these purposes, sidewalls should be sealed. Because of the rapid permeability, areas for onsite waste disposal should be carefully selected to prevent the contamination of ground water. Homes should not be clustered together, and the disposal site should not be located adjacent to any body of water. Disposal fields should be established on the contour. Reducing the

slope by cutting and filling minimizes erosion on homesites and in areas adjacent to roads. Mulching, applying fertilizer, and using an irrigation system help to establish lawn grasses and other small-seeded plants.

If areas of this soil are developed for recreational uses, such as playgrounds, picnic areas, and paths or trails, stabilizing the sandy surface layer by adding suitable topsoil or some other material helps to prevent excessive erosion.

The capability subclass is IIIs. The woodland ordination symbol is 8S.

16—Bonsai mucky fine sand, frequently flooded. This very poorly drained, nearly level soil is on low, broad flood plains along shallow perennial and intermittent streams. Slopes generally are less than 1 percent. Individual areas are elongated and range from 75 to 500 acres in size.

Typically, the surface layer is very dark grayish brown mucky fine sand about 3 inches thick. The next layer extends to a depth of about 65 inches. The upper 33 inches is brown fine sand, the next 10 inches is light brownish gray loamy fine sand, and the lower 19 inches is gray fine sand. Below this to a depth of 80 inches or more is dark gray sandy loam that has strata of organic matter and fragments of soft, white mollusk shells.

Included with this soil in mapping are small areas of the very poorly drained Harbeson soils. These soils are in landscape positions similar to those of the Bonsai soil. Also included are small areas of soils that are similar to the Bonsai soil but have loamy strata within a depth of 40 inches.

On 95 percent of the acreage mapped as Bonsai mucky fine sand, frequently flooded, Bonsai and similar soils make up 78 to 100 percent of the mapped areas.

The Bonsai soil has a seasonal high water table at or slightly above the surface for 2 to 4 months in most years. The water table is within a depth of 20 inches during the rest of most years. Flooding occurs primarily from December to March but can occur anytime during the year after periods of heavy rainfall. The available water capacity is very high in the surface layer and low to high in the stratified underlying material. Permeability is moderately rapid in the surface layer, rapid in the underlying material to a depth of 46 inches, and moderate in the rest of the profile. The content of organic matter is very high in the surface layer and high in the underlying layers. Natural fertility is low.

Most areas support natural vegetation, which consists primarily of dwarf baldcypress (fig. 3) but can include scattered slash pine, Carolina water ash, and sweetbay. The sparse understory is variable but commonly includes pitcherplant, corkwood, St Johnswort, swamp cyrilla, black titi, and waxmyrtle.

This soil is generally not used for cultivated crops, pasture, or the production of timber because of the seasonal high water table and the frequent flooding.

This soil is generally not used as a site for homes, commercial buildings, local roads and streets, or sanitary facilities because of the seasonal high water table and the frequent flooding. It is poorly suited to recreational development. Elevated boardwalks can be used for trails.

The capability subclass is VIIw. The woodland ordination symbol is 7W.

17—Kershaw sand, 2 to 5 percent slopes. This excessively drained, nearly level or gently sloping soil is on side slopes and hilltops of high sandy ridges. Slopes generally range from 2 to 5 percent but are more than 5 percent in some areas. Individual areas are elongated or irregularly shaped and range from 50 to 2,000 acres in size.

Typically, the surface layer is light brownish gray sand about 4 inches thick. The subsurface layer is brown sand about 5 inches thick. Below this to a depth of 80 inches or more is sand. The upper 39 inches is yellowish brown, the next 24 inches is brownish yellow, and the lower 8 inches or more is very pale brown.

Included with this soil in mapping are small areas of Kureb, Ortega, Resota, and Ridgewood soils. The excessively drained Kureb soils are in landscape positions similar to those of the Kershaw soil. The moderately well drained Ortega and Resota soils are on low side slopes. The somewhat poorly drained Ridgewood soils are in low swales and slight depressions.

On 95 percent of the acreage mapped as Kershaw sand, 2 to 5 percent slopes, Kershaw and similar soils make up 81 to 100 percent of the mapped areas.

The Kershaw soil does not have a seasonal high water table within a depth of 80 inches. The available water capacity is very low. Permeability is very rapid. The content of organic matter and natural fertility are low.

Most areas are used for the production of pine trees. The natural vegetation consists of sand pine, scrub oak, longleaf pine, and turkey oak and an understory of wiregrass, rosemary, and scattered saw palmetto.

This soil is poorly suited to cultivated crops because of droughtiness and the rapid leaching of plant nutrients.

This soil is poorly suited to pasture. The restricted available water capacity is a limitation. Proper applications of fertilizer and lime help deep-rooted plants, such as coastal bermudagrass and bahiagrass, to tolerate drought. Overgrazing results in deterioration of the plant cover and increases the extent of

Figure 3.—Dwarf baldcypress in an area of Bonsai mucky fine sand, frequently flooded. Many of these trees are more than 300 years old. The auger is 72 inches long.

undesirable species. Proper stocking rates and pasture rotation help to keep the pasture in good condition.

This soil is poorly suited to the production of pine trees. It is limited mainly by the droughtiness, which increases the seedling mortality rate and retards growth. Potential productivity is low for longleaf pine and slash pine. Using special nursery stock that is larger than usual or that is containerized reduces the seedling mortality rate. Using a harvesting system that leaves plant debris distributed over the site helps to maintain the content of organic matter.

Typically, this soil supports vegetation that is characteristic of the Longleaf Pine-Turkey Oak Hills range site. The natural fertility of this site is low because of the rapid movement of plant nutrients and water through the soil. Forage production is low. The

desirable forage includes creeping bluestem, chalky bluestem, indiangrass, and other varieties of bluestem.

This soil is well suited to use as a site for homes, small commercial buildings, and local roads and streets. Because of the very rapid permeability, however, sites for waste disposal systems should be carefully selected to prevent the contamination of ground water. Homes should not be clustered together, and the disposal site should not be located adjacent to any body of water. Mulching, applying fertilizer, using an irrigation system, and selecting drought-tolerant species help to establish lawn grasses and landscaping plants.

If areas of this soil are developed for recreational uses, such as playgrounds, picnic areas, and paths or trails, stabilizing the sandy surface layer by adding suitable topsoil or some other material helps to prevent excessive erosion.

The capability subclass is VIIs. The woodland ordination symbol is 6S.

18—Kershaw sand, 5 to 12 percent slopes. This excessively drained, sloping or strongly sloping soil is on side slopes and tops of high sandy ridges. Slopes generally range from 5 to 12 percent but range from 2 to 5 percent in some areas. Individual areas are elongated or irregularly shaped and range from 50 to 200 acres in size.

Typically, the surface layer is gray sand about 5 inches thick. The next layer is 53 inches of light yellowish brown sand. Below this to a depth of 80 inches or more is very pale brown fine sand that has small patches of white, clean sand grains.

Included with this soil in mapping are small areas of Kureb, Ortega, Resota, and Ridgewood soils. The excessively drained Kureb soils are in landscape positions similar to those of the Kershaw soil. The moderately well drained Ortega and Resota soils are on low side slopes. The somewhat poorly drained Ridgewood soils are in low swales and slight depressions.

On 80 percent of the acreage mapped as Kershaw sand, 5 to 12 percent slopes, Kershaw and similar soils make up 76 to 100 percent of the mapped areas.

The Kershaw soil does not have a seasonal high water table within a depth of 80 inches. The available water capacity is very low. Permeability is very rapid. The content of organic matter and natural fertility are low.

Most areas are used for the production of pine trees. The natural vegetation consists of sand pine, scrub oak, longleaf pine, and turkey oak and an understory of wiregrass, rosemary, and scattered saw palmetto.

This soil is poorly suited to most cultivated crops because of droughtiness, the slope, and the rapid leaching of plant nutrients.

This soil is poorly suited to pasture. The low available water capacity is a limitation. Proper applications of fertilizer and lime help deep-rooted plants, such as coastal bermudagrass and bahiagrass, to tolerate drought. Overgrazing results in deterioration of the plant cover and increases the extent of undesirable species. Proper stocking rates and pasture rotation help to keep the pasture in good condition. Establishing cattle gaps and watering troughs in the less sloping areas helps to control erosion where cattle traffic has killed vegetation.

This soil is poorly suited to the production of pine trees. It is limited mainly by the droughtiness, which increases the seedling mortality rate and retards growth. Potential productivity is low for longleaf pine and slash pine. Using special nursery stock that is larger than usual or that is containerized reduces the seedling mortality rate. Using a harvesting system that leaves plant debris distributed over the site helps to maintain the content of organic matter.

Typically, this soil supports vegetation that is characteristic of the Longleaf Pine-Turkey Oak Hills range site. The natural fertility of this site is low because of the rapid movement of plant nutrients and water through the soil. Forage production is low. The desirable forage includes creeping bluestem, chalky bluestem, indiangrass, and other varieties of bluestem.

This soil is well suited to homesite development. It is poorly suited to use as a site for small commercial buildings because of the slope. Because of the very rapid permeability, sites for waste disposal systems should be carefully selected to prevent the contamination of ground water. Homes should not be clustered together, and the disposal site should not be located adjacent to any body of water. Mulching, applying fertilizer, using an irrigation system, and selecting drought-tolerant species help to establish lawn grasses and landscaping plants.

If areas of this soil are developed for recreational uses, such as playgrounds, picnic areas, and paths or trails, stabilizing the sandy surface layer by adding suitable topsoil or some other material helps to prevent excessive erosion. Avoiding development in the steeper areas or using stepped walkways reduces erosion.

The capability subclass is VIIs. The woodland ordination symbol is 6S.

19—Kureb fine sand, 3 to 8 percent slopes. This excessively drained, gently sloping or sloping soil is on convex coastal ridges and remnant dunes. Slopes range from 3 to 8 percent. Individual areas are narrow

and elongated or elliptical and range from 10 to 75 acres in size.

Typically, the surface layer is gray fine sand about 4 inches thick. The subsurface layer, to a depth of about 26 inches, is fine sand. The upper 6 inches is light gray, and the lower 16 inches is white. The subsoil extends to a depth of 80 inches or more. The upper 22 inches is yellow fine sand interspersed with narrow, vertical tongues of white sand from the subsurface layer. Thin, dark brown splotches and streaks occur intermittently at the boundary between the white and yellow layers. The lower part of the subsoil is very pale brown sand that has dark yellowish brown bands.

Included with this soil in mapping are small areas of Hurricane, Kershaw, Mandarin, Ortega, and Resota soils. The excessively drained Kershaw soils are in landscape positions similar to those of the Kureb soil. The moderately well drained Ortega and Resota soils are on low side slopes. The somewhat poorly drained Hurricane and Mandarin soils are in low swales and slight depressions. Also included are Kureb soils that have slopes of more than 8 percent.

On 80 percent of the acreage mapped as Kureb fine sand, 3 to 8 percent slopes, Kureb and similar soils make up 79 to 100 percent of the mapped areas.

The Kureb soil does not have a seasonal high water table within a depth of 72 inches. The available water capacity is very low. Permeability is very rapid. The content of organic matter and natural fertility are low.

Most areas are used for the production of pine trees. The natural vegetation consists of sand pine, scrub oak, longleaf pine, and turkey oak and an understory of wiregrass, rosemary, and scattered saw palmetto.

This soil is poorly suited to most cultivated crops because of droughtiness and the rapid leaching of plant nutrients.

This soil is poorly suited to pasture and hay. The restricted available water capacity is a limitation. Proper applications of fertilizer and lime help deep-rooted plants, such as coastal bermudagrass and bahiagrass, to tolerate drought. Overgrazing results in deterioration of the plant cover and increases the extent of undesirable species. Proper stocking rates and pasture rotation help to keep the pasture in good condition.

This soil supports vegetation that is characteristic of the Sand Pine Scrub range site. The desirable forage on this site includes creeping bluestem, purple bluestem, indiangrass, and beaked panicum. Because of the droughtiness, forage production is low.

This soil is poorly suited to the production of pine trees. It is limited mainly by the droughtiness, which increases the seedling mortality rate and retards growth. Potential productivity is low for slash pine. Using special nursery stock that is larger than usual or that is containerized reduces the seedling mortality rate. Using a harvesting system that leaves plant debris distributed over the site helps to maintain the content of organic matter.

This soil is well suited to use as a site for homes, small commercial buildings, and local roads and streets. It is poorly suited to sewage lagoons and landfills because of seepage. If it is used for these purposes, sidewalls should be sealed. Because of the very rapid permeability, areas for onsite waste disposal should be carefully selected to prevent the contamination of ground water. Homes should not be clustered together, and the disposal site should not be located adjacent to any body of water. Disposal fields can be established on the contour, or the slope can be reduced by cutting and filling. Reducing the slope by cutting and filling minimizes water erosion on homesites and in areas adjacent to roads. Landscaping can be improved by mulching, applying fertilizer, using an irrigation system, and planting species that are tolerant of drought.

If areas of this soil are developed for recreational uses, such as playgrounds, picnic areas, and paths or trails, stabilizing the sandy surface layer by adding suitable topsoil or some other material helps to prevent excessive erosion.

The capability subclass is VIIs. The woodland ordination symbol is 3S.

20—Lynn Haven sand. This poorly drained, nearly level soil is in broad, very slightly depressional areas in the flatwoods. Slopes range from 0 to 2 percent. Individual areas are irregular in shape and range from 5 to 200 acres in size.

Typically, the surface layer is 22 inches of sand. The upper 8 inches is black, and the lower 14 inches is very dark gray. The subsurface layer is gray sand about 6 inches thick. The subsoil to a depth of 80 inches or more is sand. The upper 22 inches is very dark brown and dark brown, the next 14 inches is brown, and the lower 16 inches or more is very dark grayish brown.

Included with this soil in mapping are small areas of Leon and Rutlege soils. The poorly drained Leon soils are in the slightly higher landscape positions. The very poorly drained Rutlege soils are in depressions and on low, broad flats. Also included are poorly drained soils that have a spodic horizon below a depth of 30 inches. These soils are in landscape positions similar to those of the Lynn Haven soil.

On 90 percent of the acreage mapped as Lynn Haven sand, Lynn Haven and similar soils make up 78 to 100 percent of the mapped areas.

The Lynn Haven soil has a seasonal high water table within a depth of 12 inches for 4 to 6 months each year and within a depth of 30 inches for the rest of the year.

The available water capacity is low in the surface layer, moderate or high in the subsoil, and very low in the substratum. Permeability is moderate or moderately rapid in the subsoil and rapid or very rapid in the rest of the profile. The content of organic matter and natural fertility are low.

Most areas are used for the production of pine trees. The natural vegetation consists of slash pine and an understory of saw palmetto, gallberry, waxmyrtle, black titi, and fetterbush lyonia.

This soil is poorly suited to cultivated crops because of the wetness and the low fertility. The number of adapted crops that can be grown is limited unless intensive management practices are applied. A water-control system removes excess water during wet periods and provides for surface irrigation during dry periods. Row crops should be rotated with close-growing, soil-improving crops. Incorporating crop residue, including that of soil-improving crops, into the soil increases the content of organic matter. Seedbed preparation, including bedding of rows, reduces the rate of seedling mortality caused by wetness. Applications of fertilizer can increase crop yields.

This soil is moderately suited to pasture and hay. A surface water management system reduces the wetness. Applications of fertilizer and the proper selection of adapted grasses and legumes help to maximize yields. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition.

Typically, this soil supports vegetation that is characteristic of the North Florida Flatwoods range site. If good management practices are applied, this site has the potential to produce significant amounts of creeping bluestem, lopsided indiangrass, chalky bluestem, and Curtis dropseed. If the range deteriorates because of poor management practices, the site is dominated by saw palmetto and wiregrass.

This soil is moderately suited to the production of pine trees. It is limited mainly by the seasonal wetness, which can increase the seedling mortality rate, restrict the use of equipment, and cause plant competition. Potential productivity is high for slash pine. Site preparation, such as chopping, burning, and bedding, removes debris, minimizes plant competition, facilitates planting, and reduces the seedling mortality rate. Using special equipment, such as rubber-tired or crawler machinery, and harvesting only during dry periods minimize soil compaction and root damage during thinning activities. Using a harvesting system that leaves plant debris distributed over the site helps to maintain the content of organic matter. The trees respond well to applications of fertilizer.

This soil is poorly suited to use as a site for homes, small commercial buildings, and local roads and streets because of the wetness. On sites for septic tank absorption fields, mounding increases the depth to the seasonal high water table and thus helps to overcome the wetness. If adequate outlets are available, a drainage system can be installed. Installing a drainage system and adding suitable fill material to elevate roadbeds and building sites help to overcome the wetness. Installing a drainage system and selecting adapted species help to establish lawn grasses and landscaping plants.

If areas of this soil are developed for recreational uses, such as playgrounds, picnic areas, and paths or trails, stabilizing the sandy surface layer by adding suitable topsoil or some other material helps to prevent excessive erosion.

The capability subclass is IVw. The woodland ordination symbol is 11W.

21—Leefield sand. This somewhat poorly drained, nearly level soil is on low uplands and the higher ridges in the flatwoods. Slopes range from 0 to 3 percent. Individual areas are elongated or irregularly shaped and range from 5 to 50 acres in size.

Typically, the surface layer is gray sand about 7 inches thick. The subsurface layer is sand. The upper 18 inches is very pale brown and pale brown and has white and brownish yellow mottles. The lower 6 inches is light yellowish brown and has gray and brownish yellow mottles. The upper part of the subsoil is about 19 inches of yellowish brown fine sandy loam that has gray and brown mottles, contains 5 percent plinthite, and is 5 to 10 percent hardened ironstone pebbles. The lower part to a depth of 80 inches or more is gray sandy clay loam that has olive, strong brown, brown, and yellow mottles.

Included with this soil in mapping are small areas of Albany, Lynchburg, Pelham, and Stilson soils. The somewhat poorly drained Albany and Lynchburg soils are in landscape positions similar to those of the Leefield soil or are on the slightly lower flats. The moderately well drained Stilson soils are on the slightly higher ridgetops and knolls. The poorly drained Pelham soils are on low flatwood ridges. Also included are soils that are similar to the Leefield soil but have a loamy subsoil within a depth of 20 inches. These soils are in landscape positions similar to those of the Leefield soil.

On 80 percent of the acreage mapped as Leefield sand, Leefield and similar soils make up 78 to 100 percent of the mapped areas.

The Leefield soil has a seasonal high water table at a depth of 18 to 30 inches for 3 to 6 months in most years. The available water capacity is low in the surface and subsurface layers and moderate in the subsoil.

Permeability is rapid in the surface and subsurface layers and moderate in the subsoil. The content of organic matter is low. Natural fertility is medium.

Most areas are used for the production of pine trees. The natural vegetation consists of slash pine, longleaf pine, live oak, laurel oak, sweetgum, and dogwood and an understory of saw palmetto, greenbrier, and wiregrass.

This soil is only moderately suited to most cultivated crops because of the periodic wetness and occasional droughtiness. Applying fertilizer and using a well designed irrigation system can increase crop yields. Returning all crop residue to the soil and using a cropping system that includes grasses, legumes, or grass-legume mixtures help to maintain fertility and tilth.

This soil is well suited to pasture and hay. Proper applications of fertilizer and lime help deep-rooted plants, such as coastal bermudagrass and bahiagrass, to tolerate drought. Overgrazing results in deterioration of the plant cover and increases the extent of undesirable species. Proper stocking rates and pasture rotation help to keep the pasture in good condition.

Typically, this soil supports vegetation that is characteristic of the North Florida Flatwoods range site. If good management practices are applied, this site has the potential to produce significant amounts of creeping bluestem, lopsided indiangrass, chalky bluestem, and Curtis dropseed. If the range deteriorates because of poor management practices, the site is dominated by saw palmetto and wiregrass.

This soil is well suited to the production of pine trees. Potential productivity is high for slash pine and longleaf pine. Slash pine grows best with an adequate supply of phosphorus. The major management concerns are the seasonal wetness and occasional droughtiness, which increase the seedling mortality rate, restrict the use of equipment, and cause plant competition. Careful site preparation, such as chopping and bedding, removes debris, helps to control competing vegetation, and facilitates hand and mechanical planting. Using a logging system that leaves plant debris distributed over the site improves soil fertility. The trees respond well to applications of fertilizer.

This soil is only moderately suited to use as a site for homes, small commercial buildings, and local roads and streets because of the seasonal wetness and occasional droughtiness. Adding suitable fill material to elevate roadbeds and building sites and installing a drainage system help to overcome the wetness. On sites for septic tank absorption fields, mounding increases the depth to the seasonal high water table and thus helps to overcome the wetness. Mulching, applying fertilizer, and using an irrigation system help to establish lawn grasses and other small-seeded plants.

If areas of this soil are developed for recreational uses, such as playgrounds, picnic areas, and paths or trails, stabilizing the sandy surface layer by adding suitable topsoil or some other material helps to prevent excessive erosion.

The capability subclass is IIw. The woodland ordination symbol is 11W.

22—Leon sand. This poorly drained, nearly level soil is in broad areas in the flatwoods and on knolls or low ridges in titi bogs. Slopes range from 0 to 2 percent. Individual areas are irregular in shape and range from 5 to 200 acres in size.

Typically, the surface layer is dark gray sand about 8 inches thick. The subsurface layer is white sand about 14 inches thick. The subsoil is sand. The upper 18 inches is very dark brown, and the lower 32 inches is very dark brownish gray and dark brown. Below this to a depth of 80 inches or more is light brownish gray and dark grayish brown fine sand.

Included with this soil in mapping are small areas of Lynn Haven, Mandarin, Sapelo, and Scranton soils. The poorly drained Sapelo soils are in landscape positions similar to those of the Leon soil. The poorly drained Lynn Haven and Scranton soils are in the slightly lower areas in the flatwoods. The somewhat poorly drained Mandarin soils are on slightly elevated flats and low knolls. Also included are soils that are similar to the Leon soil but have either a weakly developed spodic horizon or a spodic horizon below a depth of 30 inches. These soils are in landscape positions similar to those of the Leon soil.

On 95 percent of the acreage mapped as Leon sand, Leon and similar soils make up 95 to 100 percent of the mapped areas.

The Leon soil has a seasonal high water table at a depth of 6 to 12 inches for 1 to 4 months in most years. The water table recedes to a depth of more than 40 inches during dry periods. The available water capacity is very low in the surface and subsurface layers and low in the subsoil. Permeability is rapid in the surface and subsurface layers and moderate or moderately rapid in the subsoil and underlying material. The content of organic matter is low or moderate. Natural fertility is low.

Most areas are wooded. The natural vegetation consists of longleaf pine, slash pine, saw palmetto, gallberry, waxmyrtle, wiregrass, running oak, black titi, and fetterbush lyonia.

This soil is poorly suited to cultivated crops because of the wetness and the low fertility. The number of adapted crops that can be grown is limited unless intensive management practices are applied. A water-control system removes excess water during wet

Figure 4.—Saw palmetto and slash pine in an area of Leon sand. These species are characteristic of the North Florida Flatwoods range site.

periods and provides for surface irrigation during dry periods. Row crops can be rotated with close-growing, soil-improving crops. Incorporating crop residue, including that of soil-improving crops, into the soil helps to maintain the content of organic matter. Seedbed preparation, including bedding of rows, reduces the rate of seedling mortality caused by wetness. Applications of fertilizer can increase crop yields.

This soil is well suited to pasture and hay. Water-control measures reduce surface wetness. Applications of fertilizer and the proper selection of adapted grasses and legumes help to maximize yields. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition.

Typically, this soil supports vegetation that is characteristic of the North Florida Flatwoods range site (fig. 4). If good management practices are applied, this site has the potential to produce significant amounts of creeping bluestem, lopsided indiangrass, chalky bluestem, and Curtis dropseed. If the range deteriorates because of poor management practices, the site is dominated by saw palmetto and wiregrass.

This soil is moderately suited to the production of pine trees. It is limited mainly by the seasonal wetness and occasional droughtiness, which increase the seedling mortality rate, restrict the use of equipment, and cause plant competition. Potential productivity is medium for slash pine. Site preparation, such as

chopping, burning, and bedding, removes debris, minimizes plant competition, facilitates planting, and reduces the seedling mortality rate. Using special equipment, such as rubber-tired or crawler machinery, and harvesting during dry periods minimize soil compaction and root damage during thinning activities. Using a harvesting system that leaves plant debris distributed over the site helps to maintain the content of organic matter. The trees respond well to applications of fertilizer.

This soil is poorly suited to use as a site for homes, small commercial buildings, and local roads and streets because of the wetness. On sites for septic tank absorption fields, mounding helps to maintain the system above the seasonal high water table. Adding suitable fill material to elevate roadbeds and building sites helps to overcome the wetness. If adequate outlets are available, a drainage system can lower the water table. Using an irrigation system, installing a drainage system, and selecting species that tolerate both seasonal wetness and droughtiness can help to establish lawn grasses and landscaping plants.

If areas of this soil are developed for recreational uses, such as playgrounds, picnic areas, and paths or trails, stabilizing the sandy surface layer by adding suitable topsoil or some other material helps to prevent excessive erosion.

The capability subclass is IVw. The woodland ordination symbol is 9W.

23—Maurepas muck, frequently flooded. This very poorly drained, nearly level, organic soil is in slightly brackish swamps and marshes. Slopes are generally less than 1 percent. Individual areas are elongated or irregularly shaped and range from 25 to 2,000 acres in size.

Typically, the surface layer is brown mucky peat about 6 inches thick. Below this to a depth of 80 inches or more is very dark grayish brown muck.

Included with this soil in mapping are areas of Pamlico, Dorovan, and Dirego soils. These soils are poorly drained and are in landscape positions similar to those of the Maurepas soil. Also included are small areas of very poorly drained soils that have mineral soil material within a depth of 16 inches. These soils are in the slightly higher landscape positions.

On 95 percent of the acreage mapped as Maurepas muck, frequently flooded, Maurepas and similar soils make up 89 to 100 percent of the mapped areas.

The Maurepas soil has a high water table 12 inches above the surface to a depth of 6 inches throughout the year. The water table fluctuates with the rising and falling tide. The available water capacity is very high. Permeability is rapid. The content of organic matter and natural fertility are high. The soil is frequently flooded during coastal storms and periods of high river and stream flow.

Most areas support natural vegetation, which consists primarily of sawgrass, big cordgrass, and black needlerush. Some small areas support scattered cypress, bay, and gum trees.

This soil is generally unsuitable for crops, pasture and hay, the production of pine trees, recreational development, and urban development because of the high water table, a lack of drainage outlets, and the low strength of the organic soil material. It is generally not used for range.

The capability subclass is VIIIw. No woodland ordination symbol is assigned.

24—Mandarin fine sand. This somewhat poorly drained, nearly level soil is on low coastal ridges and knolls in the flatwoods. Slopes range from 0 to 3 percent. Individual areas are narrow and elongated and range from 5 to 100 acres in size.

Typically, the surface layer is gray fine sand about 4 inches thick. Below this, to a depth of about 25 inches, is light gray fine sand. The subsoil is about 9 inches of fine sand. It is dark reddish brown that grades to dark brown. The next 27 inches is brown fine sand. Below this to a depth of 80 inches or more is white fine sand that has brown and yellow mottles.

Included with this soil in mapping are small areas of Corolla, Hurricane, Leon, Resota, and Ridgewood soils. The somewhat poorly drained Ridgewood, Corolla, and Hurricane soils are in landscape positions similar to those of the Mandarin soil. The poorly drained Leon soils are on low flats and in slight depressions. The moderately well drained Resota soils are on the higher ridges. Also included are soils that have a weakly developed, stained subsoil. These soils are poorly drained and are on low flats.

On 95 percent of the acreage mapped as Mandarin fine sand, Mandarin and similar soils make up 78 to 100 percent of the mapped areas.

The Mandarin soil has a seasonal high water table at a depth of 18 to 36 inches for 3 to 6 months in most years. The available water capacity is very low in the surface and subsurface layers and moderate in the subsoil. Permeability is rapid in the surface and subsurface layers and moderate in the subsoil. The content of organic matter and natural fertility are low.

Most areas are used for the production of pine trees or support natural vegetation. Some areas have been used for homesite development. The natural vegetation consists of sand pine, slash pine, longleaf pine, and turkey oak and an understory of wiregrass, pennyroyal, and scattered saw palmetto.

This soil is poorly suited to most cultivated crops because of droughtiness and the rapid leaching of plant nutrients. If the soil is cultivated, soil blowing is a hazard. Applying fertilizer and using a well designed irrigation system can increase crop yields. Returning all crop residue to the soil and using a cropping system that includes grasses, legumes, or grass-legume mixtures help to maintain fertility and tilth. Soil blowing can be controlled by maintaining a good ground cover of close-growing plants, minimizing tillage, establishing windbreaks, and wind stripcropping.

This soil is moderately suited to pasture and hay. Proper applications of fertilizer and lime help deep-rooted plants, such as coastal bermudagrass and bahiagrass, to tolerate drought. Overgrazing results in deterioration of the plant cover and increases the extent of undesirable species. Proper stocking rates and pasture rotation help to keep the pasture in good condition.

Typically, this soil supports vegetation that is characteristic of the North Florida Flatwoods range site. If good management practices are applied, this site has the potential to produce significant amounts of creeping bluestem, lopsided indiangrass, chalky bluestem, and Curtis dropseed. If the range deteriorates because of poor management practices, the site is dominated by saw palmetto and wiregrass.

This soil is moderately suited to the production of pine trees. Potential productivity is medium for slash pine. Slash pine grows best with an adequate supply of phosphorus. The major management concerns are the seasonal wetness and occasional droughtiness, which increase the seedling mortality rate, restrict the use of equipment, and cause plant competition. Careful site preparation, such as chopping and bedding, removes debris, helps to control competing vegetation, and facilitates hand and mechanical planting. Using a logging system that leaves plant debris distributed over the site improves soil fertility. The trees respond well to applications of fertilizer.

This soil is only moderately suited to use as a site for homes, small commercial buildings, and local roads and streets because of the seasonal wetness and occasional droughtiness. Because of the rapid permeability, areas for onsite waste disposal should be carefully selected to prevent the contamination of ground water. Homes should not be clustered together, and the disposal site should not be located adjacent to any body of water. On sites for septic tank absorption fields, mounding increases the depth to the seasonal high water table and thus helps to overcome the wetness. Mulching, applying fertilizer, and using an irrigation system help to establish lawn grasses and other small-seeded plants. Installing a drainage system and adding suitable fill material help to overcome the wetness.

If areas of this soil are developed for recreational uses, such as playgrounds, picnic areas, and paths or trails, stabilizing the sandy surface layer by adding suitable topsoil or some other material helps to prevent excessive erosion.

The capability subclass is VIs. The woodland ordination symbol is 8S.

25—Chowan, Brickyard, and Kenner soils, frequently flooded. These very poorly drained, nearly level soils are on the forested flood plains along the Apalachicola River and its distributaries. Slopes are generally less than 1 percent. Individual areas are elongated and range from 25 to several thousand acres in size. They are about 50 percent Chowan soil, 25 percent Brickyard soil, and 15 percent Kenner soil.

Typically, the surface layer of the Chowan soil is dark grayish brown silty clay loam about 5 inches thick. Below this is about 13 inches of grayish brown silt loam. The next 19 inches is black silty clay loam. Below this to a depth of 80 inches or more is a buried layer of very dark grayish brown muck.

Typically, the surface layer of the Brickyard soil is dark grayish brown silty clay about 4 inches thick. The subsoil is about 24 inches of grayish brown silty clay that has yellowish brown mottles. The next 17 inches is grayish brown silty clay loam. Below this to a depth of 80 inches or more is dark gray silty clay that is 5 to 15 percent decomposed woody debris.

Typically, the surface layer of the Kenner soil is dark brown muck about 12 inches thick. Below this is about 11 inches of fluid, dark gray silty clay loam. The next 47 inches is very dark grayish brown muck. Below this to a depth of 80 inches or more is very dark gray mucky silty clay.

Included with these soils in mapping are small areas of Maurepas and Meggett soils. The very poorly drained Maurepas soils are in landscape positions similar to those of the Chowan, Brickyard, and Kenner soils. The poorly drained Meggett soils are on the slightly higher, narrow natural levees. Also included are very poorly drained soils that are similar to the Brickyard soil but have a gray or loamy subsoil. These soils are in the lower areas on the flood plains.

On 95 percent of the acreage mapped as Chowan, Brickyard, and Kenner soils, frequently flooded, Chowan, Brickyard, Kenner, and similar soils make up 93 to 100 percent of the mapped areas.

The Chowan, Brickyard, and Kenner soils have a seasonal high water table at or above the surface for 6 months or more in most years. The soils are flooded in the spring of most years for 1 month or more. The

water table is slightly influenced daily by the tide, and the degree of influence increases with proximity to the estuarine marshes near the mouth of the river. Permeability is moderately slow or slow in the mineral layers and moderately rapid or rapid in the organic layers. The available water capacity ranges from very high or high in the organic layers to moderate in the mineral layers. The content of organic matter ranges from very high in the organic layers to low in the mineral layers. Natural fertility is high.

Most areas support natural vegetation, which consists of water tupelo, Ogeechee tupelo, swamp tupelo, Carolina water ash, cabbage palm, and baldcypress.

Because of the frequent flooding and low strength, these soils are unsuitable for crops, the production of pine trees, pasture and hay, and recreational development and as sites for homes, small commercial buildings, and local roads and streets. They are generally not used for range.

The capability subclass is VIIw. The woodland ordination symbol is 9W for the Chowan soil and 7W for the Brickyard soil. No woodland ordination symbol is assigned for the Kenner soil.

26—Duckston sand, occasionally flooded. This poorly drained, nearly level soil is on level flats adjacent to coastal dunes and marshes and in low swales between dunes. Slopes range from 0 to 2 percent. Individual areas are elongated and range from 5 to 100 acres in size.

Typically, the surface layer is dark gray sand about 4 inches thick. The underlying material extends to a depth of 80 inches or more. In sequence downward, it is 5 inches of grayish brown sand, 19 inches of light brownish gray sand, 25 inches of white sand, and 27 inches or more of light gray sand.

Included with this soil in mapping are small areas of Bayvi, Corolla, Rutlege, and Scranton soils. The poorly drained Scranton soils are in landscape positions that are similar to those of the Duckston soil but are farther inland. The very poorly drained Bayvi soils are in the tidal marshes. The very poorly drained Rutlege soils are in the lower swales between dunes. The somewhat poorly drained Corolla soils are on small dune ridges. Also included are deep, sandy soils that have a weakly stained layer. These soils are in landscape positions similar to those of the Duckston soil.

On 80 percent of the acreage mapped as Duckston sand, occasionally flooded, Duckston and similar soils make up 78 to 100 percent of the mapped areas.

The Duckston soil has a high water table within a depth of 12 inches throughout most years. The water table may fluctuate slightly with the rising and falling tide. Flooding is likely during periods of heavy rainfall in combination with high tides or during strong coastal storms. The available water capacity is very low. Permeability is very rapid. The content of organic matter and natural fertility are low.

Most areas support natural vegetation and are managed for recreational uses or wildlife habitat. A few areas have been developed as homesites and building sites. The natural vegetation is that of a maritime forest or a low coastal savannah. The maritime forest vegetation generally consists of cabbage palm, eastern redcedar, live oak, laurel oak, slash pine, gallberry, waxmyrtle, scattered saw palmetto, fetterbush lyonia, and marshhay cordgrass. The coastal savannah vegetation consists dominantly of marshhay cordgrass, seaoats, gulf muhly, sand cordgrass, and various other low grasses and widely scattered slash pine and shrubs.

This soil is generally not used for range.

This soil is generally not used for commercial production of pine trees because of the proximity to the coast. Some areas, however, have been managed extensively for turpentine production. If the soil is used for the production of pine trees, the major management concerns are the wetness, salt spray, and low fertility. Using a logging system that leaves plant debris distributed over the site improves soil fertility. Bedding reduces the rate of seedling mortality caused by wetness.

This soil is generally unsuitable for cultivated crops and pasture.

This soil is poorly suited to use as a site for homes, small commercial buildings, and local roads and streets. The major limitations are the wetness, the flooding during storm tides, and the very rapid permeability. The soil is generally unsuited to sanitary facilities because of the proximity to the coast and the potential for pollution of coastal waters. On sites for septic tank absorption fields, the depth to the high water table can be increased by constructing a mound of suitable fill material. Generally, only low-density development is recommended. On building sites, adding fill material and installing a subsurface drainage system reduce the wetness. Mulching, applying fertilizer, and using an irrigation system help to establish lawn grasses and other small-seeded plants.

If areas of this soil are developed for recreational uses, such as playgrounds, picnic areas, and paths or trails, stabilizing the sandy surface layer by adding suitable topsoil or some other material helps to prevent excessive erosion. For any kind of development, protecting the natural vegetation helps to control erosion caused by coastal winds and storm tides.

The capability subclass is VIIw. No woodland ordination symbol is assigned.

27—Pelham fine sand. This poorly drained, nearly level soil is on low flatwood ridges and broad, low-lying flats. Slopes range from 0 to 2 percent. Individual areas are elongated or irregularly shaped and range from 5 to 100 acres in size.

Typically, the surface layer is very dark gray fine sand about 6 inches thick. The subsurface layer is fine sand. The upper 12 inches is dark grayish brown and has light yellowish brown mottles. The lower 19 inches is light gray. The upper part of the subsoil is light gray fine sandy loam about 9 inches thick. The lower part to a depth of 80 inches or more is light gray sandy clay loam.

Included with this soil in mapping are small areas of Albany, Leefield, Leon, Plummer, Sapelo, Scranton, and Surrency soils. The poorly drained Leon, Sapelo, and Scranton soils are in landscape positions similar to those of the Pelham soil. The poorly drained Plummer soils are on the slightly lower flats. The very poorly drained Surrency soils are in depressions. The somewhat poorly drained Albany and Leefield soils are on the higher ridges and knolls.

On 80 percent of the acreage mapped as Pelham fine sand, Pelham and similar soils make up 75 to 97 percent of the mapped areas.

The Pelham soil has a seasonal high water table within a depth of 18 inches for as long as 6 months in most years. The available water capacity is very low or low in the surface layer and moderate in the rest of the profile. Permeability is rapid in the surface layer and moderate in the rest of the profile. The content of organic matter is moderately low or low. Natural fertility is medium.

Most areas are used for the production of pine trees. The natural vegetation consists of slash pine, water oak, and red maple and an understory of black titi, scattered saw palmetto, and wiregrass.

This soil is poorly suited to cultivated crops because of the wetness. The number of adapted crops that can be grown is limited unless intensive management practices are applied. A water-control system removes excess water during wet periods and provides for surface irrigation during dry periods. Row crops can be rotated with close-growing, soil-improving crops. Incorporating crop residue, including that of soil-improving crops, into the soil helps to maintain the content of organic matter. Seedbed preparation, including bedding of rows, and applications of fertilizer can increase crop yields.

This soil is well suited to pasture and hay. Water-control measures reduce surface wetness. Applications of fertilizer and the proper selection of adapted grasses and legumes help to maximize yields. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition.

Typically, this soil supports vegetation that is characteristic of the North Florida Flatwoods range site. If good management practices are applied, this site has the potential to produce significant amounts of creeping bluestem, lopsided indiangrass, chalky bluestem, and Curtis dropseed. If the range deteriorates because of poor management practices, the site is dominated by saw palmetto and wiregrass.

This soil is moderately suited to commercial production of pine trees. Potential productivity is high for slash pine. Slash pine grows best with an adequate supply of phosphorus. The major management concern is the seasonal wetness, which increases the seedling mortality rate, restricts the use of equipment, and causes plant competition. Site preparation, such as harrowing and bedding or double bedding, reduces the seedling mortality rate and increases early growth. Bedding should not block natural drainage. Using special equipment, such as rubber-tired or crawler machinery, and harvesting during dry periods minimize root damage and soil compaction during thinning activities. Soil compaction reduces the rate of water infiltration and inhibits aeration and root growth. The trees respond well to applications of fertilizer.

This soil is poorly suited to use as a site for homes, small commercial buildings, and local roads and streets because of the wetness. On sites for septic tank absorption fields, mounding increases the depth to the seasonal high water table and thus helps to overcome the wetness. If adequate outlets are available, a drainage system can be installed. Installing a drainage system and adding suitable fill material to elevate roadbeds and building sites help to overcome the wetness. Installing a drainage system and selecting adapted species can help to establish lawn grasses and landscaping plants.

If areas of this soil are developed for recreational uses, such as playgrounds, picnic areas, and paths or trails, stabilizing the sandy surface layer by adding suitable topsoil or some other material helps to prevent excessive erosion.

The capability subclass is Vw. The woodland ordination symbol is 11W.

28—Plummer fine sand. This poorly drained, nearly level soil is in low areas in the flatwoods and on broad, slightly depressional flats. Slopes range from 0 to 2 percent. Individual areas are irregular in shape and range from 15 to 500 acres in size.

Typically, the surface layer is fine sand about 12

inches thick. The upper 7 inches is very dark gray, and the lower 5 inches is dark gray. The subsurface layer, to a depth of about 58 inches, is gray fine sand. The upper part of the subsoil is gray fine sandy loam about 11 inches thick. The lower part to a depth of 80 inches or more is light gray sandy loam.

Included with this soil in mapping are small areas of Leon, Pelham, Sapelo, Scranton, and Surrency soils. The poorly drained Scranton soils are in landscape positions similar to those of the Plummer soil. The poorly drained Leon, Pelham, and Sapelo soils are on very slightly elevated knolls and ridges. The very poorly drained Scranton and Surrency soils are on the lower depressional flats. Also included are very poorly drained soils that are similar to the Plummer soil and poorly drained soils that have a subsoil of loamy fine sand. These soils are on the lower depressional flats.

On 80 percent of the acreage mapped as Plummer fine sand, Plummer and similar soils make up 77 to 90 percent of the mapped areas.

The Plummer soil has a seasonal high water table within a depth of 12 inches for as long as 6 months in most years. The available water capacity is very low or low in the surface and subsurface layers and low or moderate in the rest of the profile. Permeability is moderately rapid or rapid in the surface and subsurface layers and moderate in the rest of the profile. The content of organic matter is low or moderate in the surface layer and low in the rest of the profile. Natural fertility is low.

Most areas are used for the production of pine trees. The natural vegetation consists of slash pine, sweetbay, blackgum, and a few widely scattered cypress and an understory of scattered saw palmetto, gallberry, waxmyrtle, pitcherplant, black titi, and fetterbush lyonia.

This soil is poorly suited to cultivated crops because of the wetness and the low fertility. The number of adapted crops that can be grown is limited unless intensive management practices are applied. A water-control system removes excess water during wet periods and provides for surface irrigation during dry periods. Row crops can be rotated with close-growing, soil-improving crops. Incorporating crop residue, including that of soil-improving crops, into the soil helps to maintain the content of organic matter. Seedbed preparation, including bedding of rows, reduces the rate of seedling mortality caused by wetness. Applications of fertilizer can increase crop yields.

This soil is poorly suited to pasture and hay. Water-control measures remove excess water during wet periods. Applications of fertilizer and the proper selection of adapted grasses and legumes help to maximize yields. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition.

Typically, this soil supports vegetation that is characteristic of the North Florida Flatwoods range site. If good management practices are applied, this site has the potential to produce significant amounts of creeping bluestem, lopsided indiangrass, chalky bluestem, and Curtis dropseed. If the range deteriorates, the site is dominated by saw palmetto and wiregrass.

This soil is moderately suited to the production of pine trees. It is limited mainly by the seasonal wetness, which can increase the seedling mortality rate, restrict the use of equipment, and cause plant competition. Potential productivity is medium for slash pine. Site preparation, such as chopping, burning, and bedding, removes debris, minimizes plant competition, facilitates planting, and reduces the seedling mortality rate. Using special equipment, such as rubber-tired or crawler machinery, and harvesting during dry periods minimize soil compaction and root damage during thinning activities. Using a harvesting system that leaves plant debris distributed over the site helps to maintain the content of organic matter. The trees respond well to applications of fertilizer.

This soil is poorly suited to use as a site for homes, small commercial buildings, and local roads and streets because of the wetness. On sites for septic tank absorption fields, mounding increases the depth to the seasonal high water table and thus helps to overcome the wetness. If adequate outlets are available, a drainage system can lower the water table. Installing a drainage system and adding suitable fill material to elevate roadbeds and building sites help to overcome the wetness. Selecting adapted species helps to establish lawn grasses and landscaping plants.

If areas of this soil are developed for recreational uses, such as playgrounds, picnic areas, and paths or trails, stabilizing the sandy surface layer by adding suitable topsoil or some other material helps to prevent excessive erosion.

The capability subclass is IVw. The woodland ordination symbol is 9W.

29—Resota fine sand, 0 to 5 percent slopes. This moderately well drained, nearly level or gently sloping soil is on coastal ridges and remnant dunes. Slopes range from 0 to 5 percent. Individual areas are irregular in shape and range from 3 to 150 acres in size.

Typically, the surface layer is gray fine sand about 3 inches thick. The subsurface layer is white fine sand about 19 inches thick. The subsoil, to a depth of about 58 inches, is fine sand. It has organic stains at its upper boundary. The upper 22 inches is brownish yellow, and the lower 14 inches is yellow and has reddish yellow

mottles. The substratum to a depth of 80 inches or more is very pale brown fine sand that has reddish yellow mottles.

Included with this soil in mapping are small areas of Corolla, Kureb, Mandarin, Ortega, and Ridgewood soils. The moderately well drained Ortega soils are in landscape positions similar to those of the Resota soil. The excessively drained Kureb soils are on high ridges and knolls. The somewhat poorly drained Ridgewood, Corolla, and Mandarin soils are in slight swales and on the lower ridge slopes.

On 90 percent of the acreage mapped as Resota fine sand, 0 to 5 percent slopes, Resota and similar soils make up 76 to 100 percent of the mapped areas.

The Resota soil has a seasonal high water table at a depth of 40 to 60 inches for as long as 6 months in most years. The water table is below a depth of 60 inches during dry periods. The available water capacity is very low. Permeability is very rapid. The content of organic matter and natural fertility are low.

Most areas support natural vegetation. Some areas have been developed as homesites. The natural vegetation consists of sand pine, scrub oak, longleaf pine, and turkey oak and an understory of wiregrass, rosemary, and scattered saw palmetto.

This soil is poorly suited to most cultivated crops because of droughtiness and the rapid leaching of plant nutrients. If the soil is cultivated, soil blowing is a hazard. Applying fertilizer and using a well designed irrigation system can increase crop yields. Returning all crop residue to the soil and using a cropping system that includes grasses, legumes, or grass-legume mixtures help to maintain fertility and tilth. Soil blowing can be controlled by maintaining a ground cover of close-growing plants, minimizing tillage, establishing windbreaks, and wind stripcropping.

This soil is moderately suited to pasture and hay. It is limited by the restricted available water capacity. Applications of fertilizer and lime help deep-rooted plants, such as coastal bermudagrass and bahiagrass, to tolerate drought. Overgrazing results in deterioration of the plant cover and increases the extent of undesirable species. Proper stocking rates and pasture rotation help to keep the pasture in good condition.

This soil supports vegetation that is characteristic of the Sand Pine Scrub range site. Because of the droughtiness of the soil, forage production is low. The desirable plants on this site include creeping bluestem, purple bluestem, indiangrass, and beaked panicum.

This soil is moderately suited to the production of pine trees. It is limited mainly by the droughtiness, which increases the seedling mortality rate and retards growth. Potential productivity is medium for slash pine. Using special nursery stock that is larger than usual or that is containerized reduces the seedling mortality rate. Using a harvesting system that leaves plant debris distributed over the site helps to maintain the content of organic matter.

This soil is well suited to use as a site for homes, small commercial buildings, and local roads and streets. It is poorly suited to sewage lagoons and landfills because of seepage. In areas used for these purposes, sidewalls should be sealed. Areas for onsite waste disposal should be carefully selected to prevent the contamination of ground water. Homes should not be clustered together, and disposal sites should not be located adjacent to any body of water. Disposal fields should be established on the contour. Reducing the slope by cutting and filling minimizes erosion on homesites and in areas adjacent to roads. Mulching, applying fertilizer, and using an irrigation system help to establish lawn grasses and other small-seeded plants.

If areas of this soil are developed for recreational uses, such as playgrounds, picnic areas, and paths or trails, stabilizing the sandy surface layer by adding suitable topsoil or some other material helps to prevent excessive erosion.

The capability subclass is VIs. The woodland ordination symbol is 8S.

30—Rutlege loamy fine sand, depressional. This very poorly drained, nearly level soil is in depressions. Slopes are generally less than 2 percent. Individual areas are somewhat circular or oval or are elongated and range from 3 to 50 acres in size.

Typically, the surface layer is about 11 inches thick. The upper 5 inches is black loamy fine sand, and the lower 6 inches is very dark gray fine sand. The next 15 inches is light brownish gray fine sand. Below this to a depth of 80 inches or more is light gray sand.

Included with this soil in mapping are small areas of Lynn Haven, Pickney, and Scranton soils. The very poorly drained Pickney and Scranton soils are in landscape positions similar to those of the Rutlege soil. The poorly drained Lynn Haven soils are on slight knolls in depressions or near the edges of depressions. Also included are soils that are similar to the Rutlege soil but have a thin surface layer of muck. These soils are in landscape positions similar to those of the Rutlege soil.

On 95 percent of the acreage mapped as Rutlege loamy fine sand, depressional, Rutlege and similar soils make up 78 to 100 percent of the mapped areas.

The Rutlege soil has a seasonal high water table ponded on the surface or within a depth of 24 inches for 3 to 6 months in most years. The available water capacity is low. Permeability is rapid. The content of organic matter is high in the surface layer and low in the rest of the profile. Natural fertility is medium.

Most areas support natural vegetation, which consists of black titi, swamp cyrilla, and scattered slash pine and sweetbay.

This soil is not used for crops, the production of pine trees, pasture and hay, or homesite development because of the seasonal high water table and a lack of suitable drainage outlets. It is generally not used for range.

This soil is poorly suited to local roads and streets and is generally unsuited to use as a site for small commercial buildings because of the seasonal high water table. Adding suitable fill material to elevate roadbeds helps to overcome the wetness.

This soil is poorly suited to recreational uses, such as playgrounds, picnic areas, and paths or trails, because of the ponding and the lack of suitable drainage outlets.

The capability subclass is VIIw. No woodland ordination symbol is assigned.

31—Rutlege fine sand. This very poorly drained, nearly level soil is on broad, low-lying flats and on narrow flats adjacent to streams. Slopes range from 0 to 2 percent. Individual areas are elongated or irregularly shaped and range from 25 to 500 acres in size.

Typically, the surface layer is fine sand about 13 inches thick. The upper 6 inches is very dark brown, and the lower 7 inches is very dark gray. Below this to a depth of 80 inches or more is sand. The upper 21 inches is grayish brown, the next 24 inches is dark gray, and the lower 22 inches or more is gray.

Included with this soil in mapping are small areas of Lynn Haven, Pamlico, Pickney, and Scranton soils. The very poorly drained Scranton and Pickney soils are in landscape positions similar to those of the Rutlege soil. The very poorly drained Pamlico soils are in depressions. The poorly drained Lynn Haven soils are on slight knolls. Also included are soils that have a subsoil below a depth of 40 inches and soils that have an organic layer that is as much as 12 inches thick. These soils are very poorly drained and are in landscape positions similar to those of the Rutlege soil.

On 95 percent of the acreage mapped as Rutlege fine sand, Rutlege and similar soils make up 91 to 100 percent of the mapped areas.

The Rutlege soil has a seasonal high water table at or slightly above the surface for 3 to 6 months in most years. The water table is within a depth of 20 inches during the rest of most years. The available water capacity is low. Permeability is rapid. The content of organic matter is high in the surface layer and low in the rest of the profile. Natural fertility is medium.

Most areas support natural vegetation or are used for the production of pine trees. The natural vegetation consists of slash pine, black titi, swamp cyrilla, cypress, sweetbay, and blackgum and an understory of shrub-sized titi, St Johnswort, and pitcherplant.

This soil is poorly suited to cultivated crops because of the wetness and low fertility. The number of adapted crops that can be grown is limited unless intensive management practices are applied. A water-control system removes excess water during wet periods. Incorporating crop residue, including that of soil-improving crops, into the soil increases the content of organic matter. Seedbed preparation, including bedding of rows, increases the depth to the water table. Applications of fertilizer and lime can increase crop yields.

This soil is poorly suited to pasture and hay. Water-control measures reduce surface wetness. Applications of fertilizer and the proper selection of adapted grasses and legumes increase yields. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition.

This soil is generally not used for range.

This soil is poorly suited to the production of pine trees. It is limited mainly by the seasonal wetness, which can increase the seedling mortality rate, restrict the use of equipment, and cause plant competition. Potential productivity is medium for slash pine. Site preparation, such as chopping, burning, and bedding, removes debris, minimizes plant competition, facilitates planting, and reduces the seedling mortality rate. Using special equipment, such as rubber-tired or crawler machinery, and harvesting during dry periods minimize soil compaction and root damage during thinning activities. Using a harvesting system that leaves plant debris distributed over the site helps to maintain the content of organic matter. The trees respond well to applications of fertilizer.

This soil is poorly suited to use as a site for homes, small commercial buildings, and local roads and streets because of the wetness. On sites for septic tank absorption fields, mounding increases the depth to the seasonal high water table and thus helps to overcome the wetness. If adequate outlets are available, a drainage system can lower the water table. On sites for roads, installing a drainage system and adding suitable fill material help to overcome the wetness. Installing a drainage system and selecting adapted species can help to establish lawn grasses and landscaping plants.

If areas of this soil are developed for recreational uses, such as playgrounds, picnic areas, and paths or trails, stabilizing the sandy surface layer by adding suitable topsoil or some other material helps to prevent excessive erosion.

The capability subclass is Vw. The woodland ordination symbol is 8W.

32—Sapelo fine sand. This poorly drained, nearly level soil is on low knolls and ridges in the flatwoods. Slopes range from 0 to 2 percent. Individual areas are irregular in shape and range from 5 to 200 acres in size.

Typically, the surface layer is dark gray fine sand about 8 inches thick. The subsurface layer is light gray fine sand about 6 inches thick. The subsoil extends to a depth of 80 inches or more. In sequence downward, it is 12 inches of very dark grayish brown fine sand; 30 inches of light brownish gray fine sand; 6 inches of light gray loamy fine sand that has grayish brown, very pale brown, and red mottles; and 18 inches or more of gray sandy loam.

Included with this soil in mapping are small areas of Albany, Leefield, Leon, Pelham, Plummer, and Scranton soils. The poorly drained Leon soils are in landscape positions similar to those of the Sapelo soil. The poorly drained Pelham, Plummer, and Scranton soils are in the slightly lower landscape positions. The somewhat poorly drained Albany and Leefield soils are on the slightly higher flats and knolls. Also included are somewhat poorly drained soils that are similar to the Sapelo soil but have a weakly developed, stained subsoil. These soils are in the slightly higher landscape positions.

On 80 percent of the acreage mapped as Sapelo fine sand, Sapelo and similar soils make up 73 to 96 percent of the mapped areas.

The Sapelo soil has a seasonal high water table at a depth of 6 to 18 inches for 2 to 4 months each year. The water table recedes to a depth of more than 40 inches during dry periods. The available water capacity is very low in the surface and subsurface layers and moderate in the subsoil. The content of organic matter is moderately low. Natural fertility is low.

Most areas are used for the production of pine trees. The natural vegetation consists of longleaf pine, slash pine, saw palmetto, gallberry, waxmyrtle, wiregrass, running oak, black titi, and fetterbush lyonia.

This soil is poorly suited to most cultivated crops because of the wetness and the low fertility. The number of adapted crops that can be grown is limited unless intensive management practices are applied. A water-control system removes excess water during wet periods and provides for surface irrigation during dry periods. Row crops can be rotated with close-growing, soil-improving crops. Incorporating crop residue, including that of soil-improving crops, into the soil increases the content of organic matter. Seedbed preparation that includes bedding of rows reduces the rate of seedling mortality caused by wetness. Applications of fertilizer and lime can increase crop yields.

This soil is well suited to pasture and hay. A surface water management system removes excess water during wet periods. Applications of fertilizer and the proper selection of adapted grasses and legumes help to maximize yields. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition.

Typically, this soil supports vegetation that is characteristic of the North Florida Flatwoods range site. If good management practices are applied, this site has the potential to produce significant amounts of creeping bluestem, lopsided indiangrass, chalky bluestem, and Curtis dropseed. If the range deteriorates because of poor management practices, the site is dominated by saw palmetto and wiregrass.

This soil is moderately suited to the production of pine trees. It is limited mainly by the seasonal wetness and occasional droughtiness, which can increase the seedling mortality rate, restrict the use of equipment, and cause plant competition. Potential productivity is medium for slash pine. Site preparation, such as chopping, burning, and bedding, removes debris, minimizes plant competition, facilitates planting, and reduces the seedling mortality rate. Using special equipment, such as rubber-tired or crawler machinery, and harvesting during dry periods minimize soil compaction and root damage during thinning activities. Using a harvesting system that leaves plant debris distributed over the site helps to maintain the content of organic matter. The trees respond well to applications of fertilizer.

This soil is poorly suited to use as a site for homes, small commercial buildings, and local roads and streets because of the wetness. On sites for septic tank absorption fields, mounding increases the depth to the seasonal high water table and thus helps to overcome the wetness. If adequate outlets are available, a drainage system can lower the water table. Adding suitable fill material to elevate roadbeds and building sites helps to overcome the wetness. Using an irrigation system, installing a drainage system, and selecting species that tolerate both wetness and droughtiness can help to establish lawn grasses and landscaping plants.

If areas of this soil are developed for recreational uses, such as playgrounds, picnic areas, and paths or trails, stabilizing the sandy surface layer by adding suitable topsoil or some other material helps to prevent excessive erosion.

The capability subclass is IVw. The woodland ordination symbol is 10W.

33—Scranton fine sand. This poorly drained, nearly level soil is in broad areas in the flatwoods. Slopes range from 0 to 2 percent. Individual areas are irregular in shape and range from 5 to 200 acres in size.

Typically, the surface layer is very dark gray fine sand about 7 inches thick. The underlying material to a depth of 80 inches or more is fine sand. The upper 15 inches is light gray and has patches of dark gray and very dark gray. The next 24 inches is dark gray and has patches of gray and light brownish gray. The lower 34 inches or more is grayish brown and has patches of light gray.

Included with this soil in mapping are small areas of Duckston, Leon, Meadowbrook, Plummer, Ridgewood, and Rutlege soils and areas of Scranton soils that are very poorly drained. The poorly drained Leon, Meadowbrook, and Plummer soils are in landscape positions similar to those of the Scranton soil. The somewhat poorly drained Ridgewood soils are on slight knolls. The poorly drained Duckston soils are in landscape positions similar to those of the Scranton soil, in areas adjacent to coastal waters. The very poorly drained Scranton soils are on the slightly lower savannahs and in the higher areas in swamps. The very poorly drained Rutlege soils are in broad, low-lying swamps and on narrow flood plains along small creeks. Also included are soils that are similar to the Scranton soil but have a stained subsoil below a depth of 50 inches. These soils are in landscape positions similar to those of the Scranton soil.

On 95 percent of the acreage mapped as Scranton fine sand, Scranton and similar soils make up 77 to 100 percent of the mapped areas.

The Scranton soil has a seasonal high water table at a depth of 6 to 18 inches for 3 to 6 months in most years. The available water capacity is low. Permeability is rapid. The content of organic matter is moderately low or moderate. Natural fertility is low.

Most areas are used for the production of pine trees. The natural vegetation consists of slash pine, widely scattered cypress, and blackgum and an understory of saw palmetto, gallberry, waxmyrtle, black titi, swamp cyrilla, and fetterbush lyonia.

This soil is poorly suited to cultivated crops because of the wetness and the low fertility. The number of adapted crops that can be grown is limited unless intensive management practices are applied. A water-control system removes excess water during wet periods and provides for surface irrigation during dry periods. Row crops can be rotated with close-growing, soil-improving crops. Incorporating crop residue, including that of soil-improving crops, into the soil increases the content of organic matter. Seedbed preparation, including bedding of rows, helps to overcome the wetness. Applications of fertilizer and lime can increase crop yields.

This soil is moderately suited to pasture and hay. A surface water management system helps to overcome the wetness. Applications of fertilizer and the proper selection of adapted grasses and legumes increase yields. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition.

Typically, this soil supports vegetation that is characteristic of the North Florida Flatwoods range site. If good management practices are applied, this site has the potential to produce significant amounts of creeping bluestem, lopsided indiangrass, chalky bluestem, and Curtis dropseed. If the range deteriorates because of poor management practices, the site is dominated by saw palmetto and wiregrass.

This soil is moderately suited to the production of pine trees. It is limited mainly by the seasonal wetness, which can restrict the use of equipment and cause plant competition. Potential productivity is medium or high for slash pine. Site preparation, such as chopping, burning, and bedding, removes debris, minimizes plant competition, facilitates planting, and reduces the seedling mortality rate. Using special equipment, such as rubber-tired or crawler machinery, and harvesting during dry periods minimize soil compaction and root damage during thinning activities. Using a harvesting system that leaves plant debris distributed over the site helps to maintain the content of organic matter.

This soil is poorly suited to use as a site for homes, small commercial buildings, and local roads and streets because of the wetness. On sites for septic tank absorption fields, mounding increases the depth to the seasonal high water table. If adequate outlets are available, a drainage system can lower the water table. Adding suitable fill material to elevate roadbeds and building sites helps to overcome the wetness. Installing a drainage system and selecting adapted species can help to establish lawn grasses and landscaping plants.

If areas of this soil are developed for recreational uses, such as playgrounds, picnic areas, and paths or trails, stabilizing the sandy surface layer by adding suitable topsoil or some other material helps to prevent excessive erosion.

The capability subclass is IVw. The woodland ordination symbol is 10W.

34—Surrency fine sand. This very poorly drained, nearly level soil is in shallow depressions, along small streams, and in poorly defined drainageways. Slopes range from 0 to 2 percent. Individual areas are elliptical or irregularly shaped and range from 5 to 200 acres in size.

Typically, the surface layer is black fine sand about 12 inches thick. The subsurface layer is fine sand about 22 inches thick. The upper 16 inches is dark grayish brown, and the lower 6 inches is grayish brown. The subsoil extends to a depth of 80 inches or more. It is gray sandy loam that grades to sandy clay loam.

Included with this soil in mapping are small areas of Pelham, Plummer, and Rutlege soils. The very poorly drained Rutlege soils are in landscape positions similar to those of the Surrency soil. The poorly drained Pelham and Plummer soils are in the higher areas in the flatwoods and on slight knolls. Also included are soils that have a loamy subsoil below a depth of 40 inches and soils that have a surface layer of muck or mucky sand. These soils are poorly drained and are in landscape positions similar to those of the Surrency soil.

On 80 percent of the acreage mapped as Surrency fine sand, Surrency and similar soils make up 77 to 100 percent of the mapped areas.

The Surrency soil has a seasonal high water table within a depth of 6 inches for 5 months or more in most years. The available water capacity is low in the surface and subsurface layers and moderate in the subsoil. Permeability is rapid or moderately rapid in the surface and subsurface layers and moderate in the subsoil. The content of organic matter is moderate or high in the surface layer and low in the subsurface layer and the subsoil. Natural fertility is high.

Most areas support natural vegetation or are used for the production of pine trees. The natural vegetation consists of slash pine, black titi, swamp cyrilla, cypress, sweetbay, and blackgum and an understory of shrub-sized titi, St Johnswort, and pitcherplant.

This soil is poorly suited to cultivated crops because of the wetness. The number of adapted crops that can be grown is limited unless intensive management practices are applied. A water-control system removes excess water during wet periods. Incorporating crop residue, including that of soil-improving crops, into the soil increases the content of organic matter. Seedbed preparation should include bedding of rows. Applications of fertilizer and lime can increase crop yields.

This soil is poorly suited to pasture and hay. A surface water management system helps to overcome the wetness. Applications of fertilizer and the proper selection of adapted grasses and legumes increase yields. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition.

This soil is generally not used for range.

This soil is generally not used for commercial production of pine trees. It is limited mainly by the seasonal wetness, which can increase the seedling mortality rate, restrict the use of equipment, and cause plant competition. Potential productivity is medium or high for slash pine and loblolly pine and low for longleaf pine. Site preparation, such as chopping, burning, and bedding, removes debris, minimizes plant competition, facilitates planting, and reduces the seedling mortality rate. Using special equipment, such as rubber-tired or crawler machinery, and harvesting during dry periods minimize soil compaction and root damage during thinning activities. Using a harvesting system that leaves plant debris distributed over the site helps to maintain the content of organic matter.

This soil is poorly suited to use as a site for homes, small commercial buildings, and local roads and streets because of the wetness. On sites for septic tank absorption fields, mounding increases the depth to the seasonal high water table and thus helps to overcome the wetness. If adequate outlets are available, a drainage system can lower the water table. Adding suitable fill to elevate roadbeds and building sites helps to overcome the wetness. Installing a drainage system and selecting adapted species can help to establish lawn grasses and landscaping plants.

If areas of this soil are developed for recreational uses, such as playgrounds, picnic areas, and paths or trails, stabilizing the sandy surface layer by adding suitable topsoil or some other material helps to prevent excessive erosion.

The capability subclass is VIw. The woodland ordination symbol is 11W.

35—Stilson fine sand. This moderately well drained, nearly level soil is on high inland ridges and knolls. Slopes range from 0 to 3 percent. Individual areas are elongated or irregularly shaped and range from 3 to 50 acres in size.

Typically, the surface layer is fine sand about 13 inches thick. The upper 7 inches is gray, and the lower 6 inches is light yellowish brown. The subsurface layer is about 19 inches of very pale brown fine sand that has few brownish yellow mottles. The subsoil extends to a depth of 80 inches or more. The upper 11 inches is yellowish brown fine sandy loam that has few very pale brown mottles. The next 16 inches is yellowish brown sandy clay loam that has very pale brown and light brownish gray mottles and contains 5 to 8 percent plinthite. The lower 21 inches or more is mottled brown, red, and gray sandy clay loam.

Included with this soil in mapping are small areas of Blanton and Leefield soils and small areas of soils that are similar to the Blanton soils but contain plinthite. The moderately well drained Blanton soils are in landscape positions similar to those of the Stilson soil. Also

included are soils that are similar to the Stilson soil but have a loamy subsoil within a depth of 20 inches or do not contain plinthite. These soils are in landscape positions similar to those of the Stilson soil.

On 80 percent of the acreage mapped as Stilson fine sand, Stilson and similar soils make up 79 to 100 percent of the mapped areas.

The Stilson soil has a seasonal high water table at a depth of 30 to 42 inches for 1 to 4 months in most years. The water table can be perched above the subsoil for short periods after heavy rains during any part of the year. The available water capacity is low in the surface layer and moderate in the subsoil. Permeability is rapid in the surface and subsurface layers and moderate in the subsoil. The content of organic matter is low, and natural fertility is medium.

Most areas are used for the production of pine trees. The natural vegetation consists of live oak and longleaf pine and an understory of wiregrass, ferns, huckleberry, and scattered saw palmetto.

This soil is moderately suited to cultivated crops. Using an irrigation system may improve the production of some crops by helping to overcome the potential droughtiness during extended dry periods. Applications of fertilizer can increase crop yields. Returning all crop residue to the soil and using a cropping system that includes grasses, legumes, or grass-legume mixtures help to maintain fertility and tilth.

This soil is well suited to pasture and hay. Proper stocking rates and pasture rotation help to keep the pasture in good condition. Forage plants include longleaf uniola, low panicum, low paspalum, switchgrass, and lopsided indiangrass. If the range deteriorates because of poor management practices, the site is dominated by hardwoods and an understory of undesirable range species.

This soil is generally not used for range.

This soil is well suited to the production of pine trees. The main management concern is the occasional droughtiness, which contributes to seedling mortality. Potential productivity is high for slash pine and medium for longleaf pine. Slash pine grows best with an adequate supply of phosphorus. Site preparation, such as chopping and applying herbicide, helps to control competing vegetation and facilitates mechanical planting. Using a harvesting system that leaves debris distributed over the site helps to maintain the content of organic matter.

This soil is only moderately suited to homesite development because of the seasonal wetness and the occasional droughtiness. It is well suited to use as a site for small commercial buildings and local roads and streets. On sites for septic tank absorption fields, mounding increases the depth to the seasonal high water table and thus helps to overcome the wetness. Mulching, applying fertilizer, and using an irrigation system help to establish lawn grasses and other small-seeded plants.

If areas of this soil are developed for recreational uses, such as playgrounds, picnic areas, and paths or trails, stabilizing the sandy surface layer by adding suitable topsoil or some other material helps to prevent excessive erosion.

The capability subclass is IIw. The woodland ordination symbol is 12W.

36—Pickney-Pamlico complex, depressional. These very poorly drained, nearly level soils are in depressions, freshwater swamps, and poorly defined drainageways. Slopes are generally less than 1 percent. Individual areas are nearly round or are irregularly shaped and range from 10 to several thousand acres in size. They are about 45 percent Pickney soil and 40 percent Pamlico soil.

Typically, the surface layer of the Pickney soil is about 41 inches of black and very dark brown sand that has pockets of gray sand. Below this to a depth of 80 inches or more is grayish brown and light brownish gray sand.

Typically, the surface layer of the Pamlico soil is muck about 27 inches thick. The upper 5 inches is dark brown, and the lower 22 inches is very dark brown. The next layer is about 19 inches of black mucky sand. Below this to a depth of 80 inches or more is sand. The upper 8 inches is very dark grayish brown, and the lower 26 inches or more is grayish brown.

Included with these soils in mapping are small areas of Dorovan, Lynn Haven, Maurepas, Rutlege, and Scranton soils. Also included are soils that are similar to the Pamlico soil but have a loamy substratum. The very poorly drained Dorovan and Maurepas soils are in landscape positions similar to those of the Pickney and Pamlico soils. The very poorly drained Rutlege and Scranton soils are on slightly elevated flats. The poorly drained Lynn Haven and Scranton soils are on low ridges and flats.

On 95 percent of the acreage mapped as Pickney-Pamlico complex, depressional, Pickney, Pamlico, and similar soils make up 89 to 100 percent of the mapped areas.

The Pickney and Pamlico soils have a seasonal high water table within a depth of 18 inches for as much as 5 months each year. The water table is generally within a depth of less than 6 inches for the rest of most years. The available water capacity ranges from very low to very high in the Pamlico soil and from very low to moderate in the Pickney soil. Permeability ranges from moderate to rapid in both soils. The content of organic

matter is very high in the Pamlico soil and moderate in the Pickney soil. Natural fertility of both soils is high.

Most areas support natural vegetation, which consists of sweetbay, swamp tupelo, black titi, swamp cyrilla, and scattered slash pine.

These soils are unsuitable for crops, the production of pine trees, and pasture and hay because of the seasonal high water table and low strength. They are generally not used for range.

These soils are unsuitable for homesite development, local roads and streets, and small commercial buildings because of the seasonal high water table and low strength.

These soils are unsuitable for recreational uses, such as playgrounds, picnic areas, and paths or trails, because of the seasonal high water table.

The capability subclass of the Pickney soil is VIw, and that of the Pamlico soil is VIIw. The woodland ordination symbol for both soils is 7W.

37—Tooles-Meadowbrook complex, depressional. These very poorly drained, nearly level soils are in depressions and along poorly defined drainageways or small streams. Slopes are 0 to 1 percent. Individual areas are irregular in shape and range from 50 to 1,000 acres in size. They are about 55 percent Tooles soil and 30 percent Meadowbrook soil.

Typically, the surface layer of the Tooles soil is very dark grayish brown fine sand about 5 inches thick. The subsurface layer is gray, light brownish gray, and dark grayish brown fine sand about 29 inches thick. The subsoil is 13 inches of olive gray and light greenish gray sandy clay loam that has light olive brown and olive yellow mottles. Light gray, soft limestone bedrock is at a depth of about 47 inches.

Typically, the surface layer of the Meadowbrook soil is dark gray sand about 5 inches thick. The subsurface layer is light brownish gray and dark gray sand about 43 inches thick. The upper part of the subsoil is greenish gray loamy sand about 20 inches thick. The lower part to a depth of 80 inches or more is dark greenish gray sandy loam.

Included with these soils in mapping are small areas of the very poorly drained Scranton soils and soils that are similar to the Tooles soil but have a loamy layer within a depth of 20 inches. These included soils are in landscape positions similar to those of the Tooles and Meadowbrook soils.

On 95 percent of the acreage mapped as Tooles-Meadowbrook complex, depressional, Tooles, Meadowbrook, and similar soils make up 89 to 100 percent of the mapped areas.

The Tooles and Meadowbrook soils have a seasonal high water table at or on the surface for 4 to 6 months in most years. The available water capacity is low in the surface and subsurface layers of the Tooles soil and high in the subsoil. It is low in the surface and subsurface layers of the Meadowbrook soil and moderate in the subsoil. Permeability is rapid in the surface and subsurface layers of both soils and moderately slow or slow in the subsoil. The content of organic matter and natural fertility are low.

Most areas support natural vegetation, which consists of sweetbay, red maple, slash pine, cypress, blackgum, and Atlantic white-cedar and an understory of waxmyrtle, wiregrass, black titi, and sawgrass.

These soils are generally not used for cultivated crops or for range because of the seasonal high water table. They are poorly suited to the production of pine trees and pasture and hay because of ponding and a lack of suitable drainage outlets.

These soils are poorly suited to use as a site for local roads and streets and are generally not suited to use as a site for homes and small commercial buildings because of the ponding. Adding suitable fill to elevate roadbeds helps to overcome the wetness.

These soils are poorly suited to recreational uses, such as playgrounds, picnic areas, and paths or trails, because of the ponding and the lack of suitable drainage outlets.

The capability subclass is VIIw. The woodland ordination symbol is 2W for the Tooles soil and 7W for the Meadowbrook soil.

38—Meadowbrook sand. This poorly drained, nearly level soil is in the flatwoods. Slopes range from 0 to 2 percent. Individual areas are irregular in shape and range from 5 to 200 acres in size.

Typically, the surface layer is dark grayish brown sand about 4 inches thick. The subsurface layer, to a depth of about 48 inches, is sand. The upper 35 inches is mixed light brownish gray and dark grayish brown, and the lower 9 inches is light gray. The upper part of the subsoil is gray sandy loam about 16 inches thick. The lower part to a depth of 80 inches or more is light greenish gray sandy clay loam.

Included with this soil in mapping are small areas of Chaires, Leon, Scranton, and Tooles soils; soils that are similar to the Meadowbrook soil but have a loamy subsoil within a depth of 40 inches; and soils that have soft limestone bedrock below a depth of 60 inches. These soils are poorly drained and are in landscape positions similar to those of the Meadowbrook soil. Also included are very poorly drained soils that are similar to the Meadowbrook and Scranton soils. These soils are in slight depressions and intermittent drainageways.

On 90 percent of the acreage mapped as Meadowbrook sand, Meadowbrook and similar soils

make up 76 to 98 percent of the mapped areas.

The Meadowbrook soil has a seasonal high water table within a depth of 12 inches for 3 to 6 months during most years. The available water capacity is low or very low in the surface and subsurface layers and moderate in the subsoil. Permeability is rapid in the surface and subsurface layers and moderately slow in the subsoil. The content of organic matter and natural fertility are low.

Most areas are used for the production of pine trees or support natural vegetation. The natural vegetation consists of slash pine, red maple, and sweetbay and an understory of saw palmetto and various grasses and forbs.

This soil is poorly suited to cultivated crops because of the wetness. The number of adapted crops that can be grown is limited unless intensive management practices are applied. A water-control system removes excess water during wet periods and provides for surface irrigation during dry periods. Row crops can be rotated with close-growing, soil-improving crops. Incorporating crop residue, including that of soil-improving crops, into the soil increases the content of organic matter. Seedbed preparation, including bedding of rows, can increase the depth to the water table. Applying fertilizer and lime can increase crop yields.

This soil is poorly suited to pasture and hay. Water-control measures reduce surface wetness. Applications of fertilizer and the proper selection of adapted grasses and legumes help to maximize yields. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition.

Typically, this soil supports vegetation that is characteristic of the North Florida Flatwoods range site. If good management practices are applied, this site has the potential to produce significant amounts of creeping bluestem, lopsided indiangrass, chalky bluestem, and Curtis dropseed. If the range deteriorates because of poor management practices, the site is dominated by saw palmetto and wiregrass.

This soil is moderately suited to the production of pine trees. It is limited mainly by the seasonal wetness, which can increase the seedling mortality rate, restrict the use of equipment, and cause plant competition. Potential productivity is medium for slash pine. Site preparation, such as chopping, burning, and bedding, removes debris, minimizes plant competition, facilitates planting, and reduces the seedling mortality rate. Using special equipment, such as rubber-tired or crawler machinery, and harvesting during dry periods minimize soil compaction and root damage during thinning activities. Using a harvesting system that leaves plant debris distributed over the site helps to maintain the content of organic matter. The trees respond well to applications of fertilizer.

This soil is poorly suited to use as a site for homes, small commercial buildings, and local roads and streets because of the wetness. On sites for septic tank absorption fields, mounding increases the depth to the seasonal high water table and thus helps to overcome the wetness. If adequate outlets are available, a drainage system can lower the water table. Adding suitable fill to elevate roadbeds and building sites helps to overcome the wetness. Using an irrigation system, installing a drainage system, and selecting species that tolerate both seasonal wetness and droughtiness help to establish lawn grasses and landscaping plants.

If areas of this soil are developed for recreational uses, such as playgrounds, picnic areas, and paths or trails, adding suitable topsoil helps to stabilize the sandy surface layer, control erosion, and overcome the wetness.

The capability subclass is IVw. The woodland ordination symbol is 10W.

39—Scranton sand, slough. This very poorly drained, nearly level soil is in broad sloughs. Slopes are generally less than 2 percent. Individual areas are blocky or irregularly shaped and range from 25 to more than 2,000 acres in size.

Typically, the surface layer is very dark gray sand about 8 inches thick. The subsurface layer is coarsely mixed very dark gray, dark grayish brown, and light gray sand about 13 inches thick. The next 11 inches is light gray sand. Below this to a depth of 80 inches or more is mixed light gray and grayish brown sand.

Included with this soil in mapping are small areas of Lynn Haven, Meadowbrook, Plummer, and Rutlege soils and areas of Scranton soils that are poorly drained. The poorly drained Lynn Haven, Meadowbrook, Plummer, and Scranton soils are in the slightly higher areas in the flatwoods. The very poorly drained Rutlege soils are in low, broad depressions. Also included are soils that are similar to the Scranton soil but have a dark surface layer less than 6 inches thick. These soils are in landscape positions similar to those of the Scranton soil.

On 90 percent of the acreage mapped as Scranton sand, slough, Scranton and similar soils make up 75 to 100 percent of the mapped areas.

The Scranton soil has a seasonal high water table within a depth of 6 inches for 3 to 6 months in most years. The water table is within a depth of 30 inches for the rest of most years, but it recedes to a depth of more than 30 inches during extended dry periods. After periods of heavy rainfall, the surface is covered by shallow, slowly moving water for as long as 3 weeks.

The available water capacity is low. Permeability is rapid. The content of organic matter is moderate in the surface layer and low in the rest of the profile. Natural fertility is low.

Most areas are used for the production of pine trees. The natural vegetation consists of scattered cypress and sweetbay, black titi, swamp cyrilla, water-tolerant grasses, and St Johnswort.

This soil is poorly suited to cultivated crops because of the wetness and low fertility. The number of adapted crops that can be grown is limited unless intensive management practices are applied. A water-control system removes excess water during wet periods and provides for surface irrigation during dry periods. Row crops can be rotated with close-growing, soil-improving crops. Incorporating crop residue, including that of soil-improving crops, into the soil increases the content of organic matter. Seedbed preparation, including bedding of rows, can increase the depth to the water table. Applying fertilizer and lime can increase crop yields.

This soil is poorly suited to pasture and hay. A surface water management system helps to overcome the wetness. Applications of fertilizer and the proper selection of adapted grasses and legumes help to maximize yields. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition.

Typically, this soil supports vegetation that is characteristic of the Slough range site. This site has the potential to produce forage of moderately high quality. Forage plants include chalky bluestem, blue maidencane, bluejoint panicum, and toothachegrass. If the range deteriorates because of poor management practices, the site is dominated by bottlebrush threeawn, muhly, and sand cordgrass.

This soil is poorly suited to the production of pine trees. It is limited mainly by the seasonal wetness, which increases the seedling mortality rate, restricts the use of equipment, and causes plant competition. Potential productivity is medium or high for slash pine. Site preparation, such as chopping, burning, and bedding, removes debris, minimizes plant competition, facilitates planting, and reduces the seedling mortality rate. Using special equipment, such as rubber-tired or crawler machinery, and harvesting during dry periods minimize soil compaction and root damage during thinning activities. Using a harvesting system that leaves plant debris distributed over the site helps to maintain the content of organic matter.

This soil is poorly suited to use as a site for homes, small commercial buildings, and local roads and streets because of the wetness. On sites for septic tank absorption fields, mounding increases the depth to the seasonal high water table and thus helps to overcome the wetness. If adequate outlets are available, a drainage system can lower the water table. Adding suitable fill to elevate roadbeds and building sites helps to overcome the wetness. Installing a drainage system and selecting adapted species help to establish lawn grasses and landscaping plants.

If areas of this soil are developed for recreational uses, such as playgrounds, picnic areas, and paths or trails, stabilizing the sandy surface layer by adding suitable topsoil or some other material helps to prevent excessive erosion. Adding topsoil, using elevated walkways, and installing a drainage system help to overcome the wetness.

The capability subclass is VIw. The woodland ordination symbol is 8W.

40—Newhan-Corolla complex, rolling. These excessively drained or somewhat poorly drained, gently undulating to steep soils are on coastal dunes and in swales. Slopes generally range from 5 to 15 percent but can range from 2 to 30 percent. Individual areas of these soils are elongated and range from 25 to 150 acres in size. They are about 60 percent Newhan soil and 25 percent Corolla soil. Newhan soils are on high dunes, and Corolla soils are on low dunes and in high swales between dunes (fig. 5).

Typically, the surface layer of the Newhan soil is gray sand about 1 inch thick. The underlying material extends to a depth of 80 inches or more. It is about 5 inches of light gray sand, 5 inches of white sand, 10 inches of mixed light gray and light brownish gray sand, and 59 inches or more of light gray sand.

Typically, the surface layer of the Corolla soil is very dark gray sand about 3 inches thick. Below this to a depth of 80 inches or more is light gray and light brownish gray sand.

Included with these soils in mapping are small areas of Duckston and Hurricane soils. The somewhat poorly drained Hurricane soils are on the older, more stable side slopes and in swales. The poorly drained Duckston soils are in low swales and on level flats adjacent to coastal marshes and beaches. Also included are areas of beaches along the coastal fringe of the unit.

On 95 percent of the acreage mapped as Newhan-Corolla complex, rolling, Newhan, Corolla, and similar soils make up 86 to 100 percent of the mapped areas.

The Newhan soil does not have a seasonal high water table within a depth of 80 inches. The Corolla soil has a seasonal high water table at a depth of 18 to 36 inches for 2 to 6 months in most years. The water table in this soil is below a depth of 36 inches for the rest of most years. The available water capacity is very low in both soils. Permeability is very rapid. The content of organic matter and natural fertility are low.

Figure 5.—A typical area of Newhan-Corolla complex, rolling. These soils are poorly suited to most uses because of the instability of the landscape.

Many areas have been used for homesite or commercial development or for recreation. Some areas support natural vegetation. In most areas the natural vegetation is sparse. It consists of slash pine, scrub oak, Chapman oak, myrtle oak, waxmyrtle, saw palmetto, and seaoats and various woody shrubs, grasses, and herbaceous plants.

These soils are generally unsuitable for cultivated crops, pasture, and the production of timber because of the slope, shifting sands, droughtiness, soil blowing, and salt spray.

These soils are poorly suited to use as a site for homes, small commercial buildings, and local roads and streets. They are generally unsuitable as sites for sanitary landfills and sewage lagoons because of the instability of the surface and the potential for pollution. The major limitations are soil blowing, the slope, the very rapid permeability, and shifting sands. On sites for septic tank absorption fields, slopes can be reduced by cutting and filling. Limiting development decreases the risk of pollution. Absorption fields should not be located near any body of water. Mulching, applying fertilizer, and using an irrigation system help to establish landscaping plants and lawn grasses.

If areas of these soils are developed for recreational uses, erosion-control measures are needed. Access walkways reduce the mortality of dune vegetation caused by foot traffic. The less sloping areas can be stabilized by adding mulch, suitable topsoil, or pavement. For any kind of development, the natural vegetation should be protected because it is adapted to the soils and helps to control erosion. Vegetative barriers also help to control soil blowing.

The capability subclass of the Newhan soil is VIIIs, and that of the Corolla soil is VIIs. No woodland ordination symbol is assigned.

41—Pamlico-Pickney complex, frequently flooded. These very poorly drained, nearly level soils are on flood plains along rivers and major streams. Slopes are generally less than 1 percent. Individual areas are elongated and range from 50 to several thousand acres

in size. They are about 55 percent Pamlico soil and 45 percent Pickney and similar soils.

Typically, the surface layer of the Pamlico soil is very dark brown muck about 46 inches thick. The subsurface layer is very dark grayish brown mucky sand about 22 inches thick. Below this to a depth of 78 inches or more is grayish brown sand.

Typically, the surface layer of the Pickney soil is black fine sand about 13 inches thick. The subsurface layer is very dark grayish brown sand about 22 inches thick. Below this to a depth of 80 inches or more is gray sand.

Included with these soils in mapping are areas of the very poorly drained Dorovan, Harbeson, Maurepas, and Rutlege soils. Also included are areas of soils that are similar to the Pamlico soil but have a surface layer of muck less than 12 inches thick. The very poorly drained Dorovan, Harbeson, and Maurepas soils are in landscape positions similar to those of the Pamlico and Pickney soils. The very poorly drained Rutlege soils are on slightly elevated flats that are commonly near the edge of individual areas of the unit.

On 95 percent of the acreage mapped as Pamlico-Pickney complex, frequently flooded, Pamlico, Pickney, and similar soils make up 89 to 100 percent of the mapped areas.

The Pamlico and Pickney soils have a seasonal high water table at or above the surface for much of the year. They are flooded during periods of heavy rainfall, mainly from December to April. The available water capacity is very high in the organic layers and very low to moderate in the mineral layers. Permeability is rapid or moderately rapid. The content of organic matter is high in the surface layer and low in the rest of the profile. Natural fertility is high.

Most areas support natural vegetation, which consists of blackgum, slash pine, cypress, sweetbay, and red maple and an understory of ferns and grasses.

These soils are unsuitable for crops, pasture and hay, and the production of pine trees because of the frequent flooding, the seasonal high water table, and low strength. They are generally not used for range.

These soils are unsuitable for homesite development, local roads and streets, and small commercial buildings because of the seasonal high water table, the frequent flooding, and low strength. They are unsuitable for recreational uses, such as playgrounds, picnic areas, and paths or trails, because of the frequent flooding.

The capability subclass of the Pamlico soil is VIIw, and that of the Pickney soil is VIw. The woodland ordination symbol is 4W for the Pamlico soil and 7W for the Pickney soil.

42—Meadowbrook, Meggett, and Tooles soils, frequently flooded. These poorly drained, nearly level soils are on flood plains along small rivers. Slopes range from 0 to 2 percent. Individual areas are elongated and range from 25 to 300 acres in size. They are about 35 percent Meadowbrook soil, 30 percent Meggett soil, and 15 percent Tooles soil.

Typically, the surface layer of the Meadowbrook soil is dark grayish brown fine sand about 5 inches thick. The subsurface layer, to a depth of about 42 inches, is fine sand. The upper 27 inches is light gray and light brownish gray and has grayish brown and brownish yellow mottles. The lower 10 inches is gray. The subsoil to a depth of 80 inches or more is gray sandy loam.

Typically, the surface layer of the Meggett soil is dark gray fine sandy loam about 4 inches thick. The subsurface layer is gray fine sandy loam about 8 inches thick. The subsoil to a depth of 80 inches or more is sandy clay. The upper 8 inches is grayish brown, and the lower 60 inches or more is dark gray.

Typically, the surface layer of the Tooles soil is dark grayish brown fine sand about 3 inches thick. The subsurface layer is gray fine sand about 18 inches thick. The subsoil extends to a depth of about 59 inches. The upper 17 inches is gray sandy clay loam, the next 16 inches is gray sandy clay, and the lower 5 inches is dark gray sandy clay. Soft, white limestone bedrock is at a depth of about 59 inches. It is mixed with pockets of gray sandy clay..

Included with these soils in mapping are small areas of the very poorly drained Harbeson soils in slight depressions on the flood plains. Also included are small areas of soils that are similar to the Meadowbrook soil but have a thick, black surface layer and have soft limestone bedrock at a depth of 40 to 60 inches and soils that are similar to the Tooles soil but do not have limestone bedrock within a depth of 80 inches. These included soils are very poorly drained and are in landscape positions similar to those of the Meadowbrook and Tooles soils. Also included are sandy soils that are stratified with loamy layers. These included soils are somewhat poorly drained to moderately well drained and are on narrow, sandy bluffs along the New River, north of the Gulley Branch.

On 95 percent of the acreage mapped as Meadowbrook, Meggett, and Tooles soils, frequently flooded, Meadowbrook, Meggett, Tooles, and similar soils make up 85 to 100 percent of the mapped areas.

The Meadowbrook, Meggett, and Tooles soils have a seasonal high water table within a depth of 12 inches for 3 to 6 months in most years. The available water capacity is moderate in the surface layer of the Meggett soil and moderate or high in the subsoil. It is low in the

surface and subsurface layers of the Meadowbrook and Tooles soils and moderate or high in the subsoil. Permeability is moderately rapid or rapid in the surface and subsurface layers of all three soils and moderately slow or slow in the subsoil. The content of organic matter is moderately low or low. Natural fertility is medium in the Meggett soil and low in the Meadowbrook and Tooles soils.

Most areas support natural vegetation, which consists of slash pine, sweetbay, red maple, cypress, and Atlantic white-cedar and an understory of sawgrass, scattered saw palmetto, St Johnswort, and pitcherplant.

These soils are unsuitable for crops because of frequent flooding during the growing season. They are generally not used for range.

These soils are poorly suited to commercial production of pine trees because of the frequent flooding and the seasonal wetness, which increase the seedling mortality rate and restrict the use of equipment and which can devastate the stand during periods of severe flooding. Potential productivity is moderate or high for slash pine and high for loblolly pine. Using special equipment, such as rubber-tired or crawler machinery, and harvesting during dry periods minimize soil compaction and root damage during thinning activities. Planting after floodwaters subside improves the seedling survival rate. Site preparation, such as chopping, burning, and bedding, removes debris, minimizes plant competition, facilitates planting, and reduces the seedling mortality rate. Using a harvesting system that leaves debris distributed over the site helps to maintain the content of organic matter. The trees respond well to applications of fertilizer.

These soils are unsuitable as sites for homes, small commercial buildings, and local roads and streets because of the frequent flooding.

If areas of these soils are developed for recreational uses, the frequent flooding is a major concern. Generally, only low-intensity development is practical.

The capability subclass is VIw. The woodland ordination symbol is 10W for the Meadowbrook soil, 13W for the Meggett soil, and 11W for the Tooles soil.

43—Meadowbrook sand, slough. This very poorly drained, nearly level soil is in broad sloughs. Slopes are generally less than 2 percent. Individual areas are elongated or irregularly shaped and range from 25 to more than 300 acres in size.

Typically, the surface layer is dark grayish brown sand about 4 inches thick. The subsurface layer, to a depth of about 57 inches, is sand. The upper 7 inches is light brownish gray and has yellowish brown mottles. The lower 46 inches is light gray and has brownish yellow mottles. The upper part of the subsoil is greenish gray sandy loam about 8 inches thick. The lower part to a depth of 80 inches or more is dark greenish gray sandy clay loam.

Included with this soil in mapping are small areas of Harbeson, Rutlege, and Scranton soils. The very poorly drained Scranton soils are in landscape positions similar to those of the Meadowbrook soil. The very poorly drained Harbeson and Rutlege soils are in the lower drainageways and depressions. Also included are poorly drained Scranton and Meadowbrook soils that are on slight knolls.

On 95 percent of the acreage mapped as Meadowbrook sand, slough, Meadowbrook and similar soils make up 75 to 100 percent of the mapped areas.

The Meadowbrook soil has a seasonal high water table within a depth of 6 inches for 3 to 6 months in most years. The water table is within a depth of 30 inches for the rest of most years. It recedes to a depth of more than 30 inches during extended dry periods. After periods of heavy rainfall, the surface is covered by shallow, slowly moving water for as long as 3 weeks. Permeability is rapid in the surface and subsurface layers and moderate or moderately slow in the subsoil. The available water capacity is low in the surface and subsurface layers and moderate in the subsoil. The content of organic matter is moderately low in the surface layer and low in the rest of the profile. Natural fertility is low.

Most areas are used for the production of pine trees. The natural vegetation consists of scattered cypress and sweetbay, black titi, swamp cyrilla, Atlantic white-cedar, pitcherplant, and St Johnswort.

This soil is poorly suited to cultivated crops because of the wetness and the low fertility. The number of adapted crops that can be grown is limited unless intensive management practices are applied. A water-control system removes excess water during wet periods and provides for surface irrigation during dry periods. Growing row crops in rotation with close-growing, soil-improving crops and incorporating crop residue, including that of soil-improving crops, into the soil increase the content of organic matter. Seedbed preparation, including bedding of rows, can increase the depth to the water table. Applying fertilizer and lime can increase crop yields.

This soil is poorly suited to pasture and hay. A drainage system can remove excess water during wet periods. Applications of fertilizer and the proper selection of adapted grasses and legumes help to maximize yields. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition.

Typically, this soil supports vegetation that is

characteristic of the Slough range site. This site has the potential to produce forage of moderately high quality. Forage plants include chalky bluestem, blue maidencane, bluejoint panicum, and toothachegrass. If the range is in poor condition, the site is dominated by bottlebrush threeawn, muhly, and sand cordgrass.

This soil is poorly suited to the production of pine trees. It is limited mainly by the seasonal wetness, which increases the seedling mortality rate, restricts the use of equipment, and causes plant competition. Potential productivity is moderate or high for slash pine and loblolly pine and low for longleaf pine. Site preparation, such as chopping, burning, and bedding, removes debris, minimizes plant competition, facilitates planting, and reduces the seedling mortality rate. Using special equipment, such as rubber-tired or crawler machinery, and harvesting during dry periods minimize soil compaction and root damage during thinning activities. The trees respond well to applications of fertilizer. Using a harvesting system that leaves plant debris distributed over the site helps to maintain the content of organic matter.

This soil is poorly suited to homesite development, small commercial buildings, and local roads and streets because of the wetness. Adding suitable fill material can raise building sites and roadbeds to a level above the wetness. On sites for septic tank absorption fields, mounding increases the depth to the seasonal high water table and thus helps to overcome the wetness. If adequate outlets are available, a drainage system can lower the water table. Installing a drainage system and selecting adapted species help to establish lawn grasses and landscaping plants.

If areas of this soil are developed for recreational uses, such as playgrounds, picnic areas, and paths or trails, stabilizing the sandy surface layer by adding topsoil or some other material helps to prevent excessive erosion. Adding topsoil, using elevated walkways, or installing a drainage system helps to overcome the wetness.

The capability subclass is VIw. The woodland ordination symbol is 8W.

44—Tooles sand. This poorly drained, nearly level soil is in the flatwoods. Slopes range from 0 to 2 percent. Individual areas are irregular in shape and range from 50 to 500 acres in size.

Typically, the surface layer is very dark grayish brown sand about 3 inches thick. The subsurface layer is dark grayish brown and light gray sand about 24 inches thick. The subsoil is gray sandy clay loam about 23 inches thick. Below this to a depth of 80 inches or more is soft, white limestone bedrock that contains shell fragments.

Included with this soil in mapping are small areas of Chaires, Meadowbrook, and Scranton soils. The poorly drained Meadowbrook and Scranton soils are in landscape positions similar to those of the Tooles soil. The poorly drained Chaires soils are on slight knolls. Also included are poorly drained soils that are similar to the Tooles soil but have soft limestone bedrock at a depth of more than 60 inches. These soils are in landscape positions similar to those of the Tooles soil.

On 80 percent of the acreage mapped as Tooles sand, Tooles and similar soils make up 74 to 100 percent of the mapped areas.

The Tooles soil has a seasonal high water table at a depth of 6 to 12 inches for 6 to 8 months and within a depth of 20 inches for 4 months in most years. The available water capacity is low in the surface and subsurface layers and high in the subsoil. Permeability is rapid in the surface and subsurface layers and moderately slow or slow in the subsoil. The content of organic matter is moderately low or moderate. Natural fertility is low.

In most areas, the natural vegetation consists of longleaf pine, slash pine, sweetgum, sweetbay, red maple, and cabbage palm and an understory of waxmyrtle, gallberry, black titi, and scattered saw palmetto.

This soil is poorly suited to cultivated crops because of the wetness. The number of adapted crops that can be grown is limited unless intensive management practices are applied. A water-control system removes excess water during wet periods and provides for surface irrigation during dry periods. Row crops can be rotated with close-growing, soil-improving crops. Incorporating crop residue, including that of soil-improving crops, into the soil increases the content of organic matter. Seedbed preparation, including bedding of rows, can increase the depth to the water table. Applications of fertilizer and lime can increase crop yields.

This soil is poorly suited to pasture and hay. A drainage system can remove excess water during wet periods. Applications of fertilizer and the proper selection of adapted grasses and legumes help to maximize yields. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition.

Typically, this soil supports vegetation that is characteristic of the North Florida Flatwoods range site. If good management practices are applied, this site has the potential to produce significant amounts of creeping bluestem, lopsided indiangrass, chalky bluestem, and Curtis dropseed. If the range deteriorates because of poor grazing management, the site is dominated by saw palmetto and wiregrass.

This soil is moderately suited to the production of pine trees. It is limited mainly by the seasonal wetness, which can increase the seedling mortality rate, restrict the use of equipment, and cause plant competition. Potential productivity is high for slash pine and loblolly pine. Site preparation, such as chopping, burning, and bedding, removes debris, minimizes plant competition, facilitates planting, and reduces the seedling mortality rate. Using special equipment, such as rubber-tired or crawler machinery, and harvesting during dry periods minimize soil compaction and root damage during thinning activities. Using a harvesting system that leaves plant debris distributed over the site helps to maintain the content of organic matter. The trees respond well to applications of fertilizer.

This soil is poorly suited to homesite development, small commercial buildings, and local roads and streets because of the wetness. Adding suitable fill material can raise building sites and roadbeds to a level above the wetness. On sites for septic tank absorption fields, mounding increases the depth to the seasonal high water table. If adequate outlets are available, a drainage system can lower the water table. Installing a drainage system and selecting adapted species can help to establish lawn grasses and landscaping plants.

If areas of this soil are developed for recreational uses, such as playgrounds, picnic areas, and paths or trails, stabilizing the sandy surface layer by adding suitable topsoil or some other material helps to prevent excessive erosion. Adding topsoil, using elevated walkways, or installing a drainage system helps to overcome the wetness.

The capability subclass is IIIw. The woodland ordination symbol is 11W.

45—Wehadkee-Meggett complex, frequently flooded. These poorly drained, nearly level soils are on point bars and natural levees on the flood plains along the Apalachicola River and its distributaries. Slopes range from 0 to 2 percent. Individual areas are elongated and range from 5 to 200 acres in size. They are about 40 percent Wehadkee soil and 40 percent Meggett soil.

Typically, the surface layer of the Wehadkee soil is brown loam about 3 inches thick. The subsoil extends to a depth of about 40 inches. The upper 13 inches is gray loam that has strong brown mottles. The lower 24 inches is gray sandy loam that has yellowish brown mottles and thin layers of sandy clay loam. The next 30 inches is light gray sand. Below this to a depth of 80 inches or more is gray fine sandy loam.

Typically, the surface layer of the Meggett soil is dark grayish brown loam about 4 inches thick. The upper 6 inches of the subsurface layer is light gray loamy fine sand that has yellowish brown mottles. The lower 8 inches is gray loamy sand. The subsoil to a depth of 80 inches or more is gray sandy clay. The upper 12 inches has yellowish red mottles, and the lower 50 inches or more has grayish brown mottles.

Included with these soils in mapping are small areas of Chowan, Brickyard, and Kenner soils. These very poorly drained soils are on the lower flood plains. Brickyard soils have a silty subsoil. Chowan soils are stratified with layers of muck. Kenner soils are organic and have strata of mineral soil material.

On 95 percent of the acreage mapped as Wehadkee-Meggett complex, frequently flooded, Wehadkee, Meggett, and similar soils make up 82 to 100 percent of the mapped areas.

The Meggett and Wehadkee soils have a seasonal high water table within a depth of 12 inches for 3 months or more during most years. They are frequently flooded, and water remains above the surface for 1 month or more. The available water capacity is moderate or high in the surface layer and subsoil and is highly variable in the underlying layers. Permeability is moderately rapid in the surface layer, slow to moderate in the subsoil, and variable in the underlying layers. The content of organic matter is moderate in the surface layer and low to moderate in the rest of the profile. Natural fertility is medium.

In most areas, the natural vegetation consists of water oak, overcup oak, cabbage palm, red maple, sweetgum, scattered cypress, sweetbay, and Ogeechee tupelo.

These soils are unsuitable for cultivated crops because of the frequent flooding during the growing season.

These soils are poorly suited to pasture and hay because of the frequent flooding. They are generally not used for range.

These soils are poorly suited to commercial production of pine trees because of the frequent flooding and seasonal wetness, which increase the seedling mortality rate and restrict the use of equipment and which can devastate the stand during periods of severe flooding. Potential productivity is high for slash pine and loblolly pine. Using special equipment, such as rubber-tired or crawler machinery, and harvesting during dry periods minimize soil compaction and root damage during thinning activities. Planting after floodwaters subside increases the rate of seedling survival. Site preparation, such as chopping, burning, and bedding, removes debris, minimizes plant competition, facilitates planting, and reduces the seedling mortality rate. Using a harvesting system that leaves plant debris distributed over the site helps to maintain the content of organic

matter. The trees respond well to applications of nitrogen and phosphorus.

These soils are unsuitable for local roads and streets, homesite development, and small commercial buildings because of the frequent flooding.

If areas of these soils are developed for recreational uses, the frequent flooding is a major concern. Generally, only low-intensity development is practical.

The capability subclass is VIIw. The woodland ordination symbol is 8W for the Wehadkee soil and 13W for the Meggett soil.

46—Duckston-Rutlege-Corolla complex. These very poorly drained to somewhat poorly drained, nearly level soils are on low ridges and flats and in swales on the barrier islands. The individual landscape components occur in a repeating, parallel sequence. Slopes generally range from 0 to 2 percent but are slightly higher on short breaks between dunes and swales. Individual areas of these soils are elongated and range from 100 to several thousand acres in size. They are about 50 percent Duckston soil, 25 percent Rutlege soil, and 20 percent Corolla soil. The very poorly drained Rutlege soil is in low swales. The poorly drained Duckston soil is on flats. The somewhat poorly drained Corolla soil is on low ridges.

Typically, the surface layer of the Duckston soil is very dark grayish brown fine sand about 2 inches thick. The next 10 inches is dark gray and light gray fine sand that has a few small shell fragments. Below this is a buried surface layer of very dark brown and dark gray fine sand about 4 inches thick. The next 16 inches is grayish brown fine sand. Below this to a depth of 80 inches or more is light brownish gray fine sand.

Typically, the surface layer of the Rutlege soil is very dark grayish brown fine sand about 10 inches thick. Below this to a depth of 80 inches or more is grayish brown fine sand.

Typically, the surface layer of the Corolla soil is very dark gray sand about 3 inches thick. Below this to a depth of 80 inches or more is light gray and light brownish gray sand.

Included with these soils in mapping are small areas of Hurricane and Scranton soils. The somewhat poorly drained Hurricane soils are in landscape positions similar to those of the Corolla soil. The poorly drained Scranton soils are in landscape positions similar to those of the Duckston soil. Also included are very poorly drained soils that are similar to the Rutlege soil but have a loamy surface layer. These soils are in low swales.

On 90 percent of the acreage mapped as Duckston-Rutlege-Corolla complex, Duckston, Rutlege, Corolla, and similar soils make up 75 to 100 percent of the mapped areas.

The Duckston soil has a seasonal high water table within a depth of 12 inches for as long as 12 months in most years. About 6 to 18 inches of water is ponded on the surface of the Rutlege soil for 6 months or longer in most years. The Corolla soil has a seasonal high water table at a depth of 18 to 36 inches for 2 to 6 months in most years. The available water capacity is low or very low in all three soils. Permeability is rapid or very rapid. The content of organic matter generally is low, but it is high in the surface layer of the Rutlege soil. Natural fertility is low.

Most areas support natural vegetation. The natural vegetation on the Duckston soil consists of slash pine, water oak, laurel oak, cabbage palm, gallberry, and marshhay cordgrass. The natural vegetation on the Corolla soil consists of live oak, myrtle oak, rosemary, and waxmyrtle. The natural vegetation on the Rutlege soil consists of willow, sawgrass, cabbage palm, slash pine, and St Johnswort.

These soils are generally not used for crops, hay and pasture, or range because of the wetness, the low fertility, and the complex slope pattern.

These soils are generally not used for the production of pine trees because of the low fertility and a high seedling mortality rate. The Duckston soil is best suited to this use. Careful site preparation, such as chopping and bedding, removes debris, helps to control competing vegetation, and facilitates planting. Using a harvesting system that leaves plant debris distributed over the site improves soil fertility. The trees respond well to applications of fertilizer.

These soils are poorly suited to local roads and streets, homesite development, and small commercial buildings because of the ponding on the Rutlege soil, the wetness of the Duckston soil, the narrowness of ridges on the Corolla soil, and the potential for flooding during extreme high tides and coastal storms. Onsite investigation is needed to determine management needs for these uses.

If areas of these soils are developed for recreational uses, such as playgrounds, picnic areas, and paths or trails, stabilizing the sandy surface layer by adding suitable topsoil or some other material helps to prevent excessive erosion. Using access walkways or adding suitable fill helps to overcome the wetness on the Rutlege soil.

The capability subclass of the Duckston soil is VIIw, that of the Rutlege soil is VIw, and that of the Corolla soil is VIIw. No woodland ordination symbol is assigned.

47—Duckston-Bohicket-Corolla complex. These very poorly drained to somewhat poorly drained, nearly

level soils are on low ridges and flats and in narrow, elongated tidal marshes on the barrier islands. The individual landscape components occur in a repeating, parallel sequence. Slopes generally range from 0 to 2 percent but are slightly higher on short breaks between dunes and swales. Individual areas of these soils are elongated and range from 200 to 800 acres in size. They are about 50 percent Duckston soil, 25 percent Bohicket soil, and 15 percent Corolla soil. The poorly drained Duckston soil is on very low dune ridges, on nearly level flats, and in swales between the low dune ridges of the somewhat poorly drained Corolla soil. The very poorly drained Bohicket soil is in narrow, elongated tidal marshes between the low dune ridges.

Typically, the surface layer of the Duckston soil is dark grayish brown fine sand about 4 inches thick. Below this to a depth of 80 inches or more is grayish brown sand that has a few small shell fragments.

Typically, the surface layer of the Bohicket soil is very dark gray clay about 5 inches thick. The next 34 inches is dark gray and gray clay. Below this to a depth of 80 inches or more is grayish brown and dark grayish brown sand.

Typically, the surface layer of the Corolla soil is very dark gray sand about 3 inches thick. Below this to a depth of 80 inches or more is light gray and white sand in which the content of shell fragments ranges from 5 to 20 percent.

Included with these soils in mapping are small areas of the very poorly drained Rutlege soils in low swales that are not adjacent to the tidal marshes. Also included are soils that are similar to the Duckston soil and soils that are similar to the Bohicket soil. The soils that are similar to the Duckston soil are very poorly drained and are in low swales that are not adjacent to the tidal marshes. The soils that are similar to the Bohicket soil are very poorly drained and are in tidal marshes. They contain less than 35 percent clay in the underlying material between depths of 10 and 40 inches.

On 90 percent of the acreage mapped as Duckston-Bohicket-Corolla complex, Duckston, Bohicket, Corolla, and similar soils make up 77 to 100 percent of the mapped areas.

The Duckston soil has a seasonal high water table within a depth of 12 inches for as long as 12 months in most years. The Bohicket soil is flooded daily by normal high tides. The Corolla soil has a seasonal high water table at a depth of 18 to 36 inches for 3 to 6 months in most years. The available water capacity is low or very low in all three soils. Permeability is rapid or very rapid in the Duckston and Corolla soils and very slow or slow in the Bohicket soil. The content of organic matter is generally low, but it is high in the surface layer of the Bohicket soil. Natural fertility is low.

Most areas support natural vegetation. The natural vegetation on the Duckston soil consists of slash pine, water oak, laurel oak, cabbage palm, gallberry, and marshhay cordgrass. The natural vegetation on the Corolla soil consists of live oak, myrtle oak, rosemary, and waxmyrtle. The natural vegetation on the Bohicket soil consists of black needlerush, marshhay cordgrass, saltwort, and sawgrass.

These soils are generally not used for crops, hay and pasture, or range because of the wetness, the low fertility, and the complex slope pattern.

These soils are generally not used for the production of pine trees because of the low fertility and a high seedling mortality rate. The Duckston soil is best suited to this use. Careful site preparation, such as chopping and bedding, removes debris, helps to control competing vegetation, and facilitates planting. Using a logging system that leaves plant debris distributed over the site increases soil fertility. The trees respond well to applications of fertilizer.

This unit is poorly suited to local roads and streets, homesite development, and small commercial buildings because of the tidal flooding and the low strength of the Bohicket soil, the wetness of the Duckston soil, and the narrowness of ridges on the Corolla soil. Onsite investigation is needed to determine management needs for these uses.

If areas of these soils are developed for recreational uses, such as playgrounds, picnic areas, and paths or trails, stabilizing the sandy surface layer by adding suitable topsoil or some other material helps to prevent excessive erosion. Using access walkways helps to preserve the delicate vegetation that stabilizes these soils. Using access walkways or adding suitable fill helps to overcome the wetness on the Duckston soil.

The capability subclass of the Duckston soil is VIIw, that of the Bohicket soil is VIIIw, and that of the Corolla soil is VIIs. No woodland ordination symbol is assigned.

48—Udorthents, nearly level. These somewhat poorly drained to moderately well drained soils are on high, nearly level deposits of dredge spoil. They are primarily on Timber Island, which is located at the mouth of the Carrabelle River. Slopes generally range from 0 to 3 percent. Individual areas are nearly round and range from 15 to 100 acres in size.

These soils formed in recent dredge spoil of highly variable composition. No one pedon is typical of these soils, but commonly they have a surface layer that is dark grayish brown loamy sand about 6 inches thick. The next 17 inches is mixed white and pale brown sand. It has about 25 percent fragments of very dark gray clay that is mottled with brownish yellow and

reddish yellow. Below this is about 13 inches of sand. It is light gray and has thin bands of yellowish brown and brownish yellow. It has about 15 percent very dark gray fragments that are coated with a thin olive yellow rind. The next 22 inches is light brownish gray sand that has reddish yellow mottles. Below this to a depth of 80 inches or more is light brownish gray sand that has 5 to 10 percent sand- and gravel-sized fragments of carbonate.

Included with these soils in mapping are small areas of Bayvi, Bohicket, Dirego, and Tisonia soils. These very poorly drained soils are in tidal marshes. Also included are small areas of soils that are similar to the Udorthents but have a seasonal high water table within a depth of 20 inches.

The vegetation on the Udorthents is highly variable but includes slash pine, sand pine, waxmyrtle, cabbage palm, and water oak. Some areas are unvegetated or very sparsely vegetated.

These soils have a seasonal high water table at a depth of 20 to 60 inches for 3 months or longer during most years. Other soil properties are so variable that they cannot be determined without onsite investigation.

These soils are so variable that suitability for most land uses cannot be determined without onsite investigation. Some areas are extremely acid because of the oxidation of sulfides in the dredge spoil. This condition can be highly corrosive to metal and concrete. Many plants cannot tolerate this extremely acid condition.

No capability subclass or woodland ordination symbol is assigned.

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis for predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as rangeland and woodland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; and for wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern that is in harmony with nature.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Crops and Pasture

William F. Kuenstler, conservation agronomist, Soil Conservation Service, helped prepare this section.

General management needed for crops and pasture is suggested in this section. The crops or pasture plants best suited to the soils, including some not commonly grown in the survey area, are identified; the system of land capability classification used by the Soil Conservation Service is explained; and the estimated yields of the main crops and hay and pasture plants are listed for each soil.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading "Detailed Soil Map Units." Specific information can be obtained from the local office of the Soil Conservation Service or the Cooperative Extension Service.

According to United States Department of Agriculture basic resource data, less than 1,000 acres in Franklin County is used for crops or pasture. Limited acreages of corn, vegetables, and specialty crops are grown. Specialty crops, such as vegetables, blueberries, grapes, nursery plants, and pecan trees, commonly are grown in dooryard plots or in greenhouses (fig. 6). Pastures produce forage for several herds of beef cattle throughout the county.

The main agricultural enterprise in Franklin County is beekeeping. The abundant tupelo gum trees along the rivers and streams provide good habitat for bees that produce high-quality tupelo honey. Honey derived from titi blossoms, gallberry, palmetto, and other native and cultivated plants also is collected.

Many areas of Franklin County are generally suited to increased agricultural production if measures that help to overcome limitations or hazards, such as wetness, rapid permeability, and low natural fertility, are applied. On most soils in the county, a water-control system is needed to remove excess water in wet seasons and to provide for subsurface irrigation in dry seasons if high-value vegetable crops are grown. Also, applying the latest crop production technology would increase food production on all cropland in the survey area.

Although the potential for increased food production exists in Franklin County, several factors should be considered when crops and growing sites are selected. Among these factors are the economic conditions, the possibility of adverse weather conditions, the availability

Figure 6.—Blueberries in an area of Mandarin fine sand.

of suitable drainage outlets, an adequate supply of fresh water for irrigation, and environmental considerations, including the risk of pollution of nearby water and the possibility of urban development.

In addition to these factors, knowledge of the soils and their properties is necessary. Some of the major soil properties that should be considered are erosion, wetness, soil fertility, and tilth.

Erosion is a hazard mainly in disturbed areas that have been developed for urban use or that are farmed. Water erosion during intense storms lowers the productivity of the soil by washing away the more fertile topsoil. It also increases the pollution of streams by sediment, which reduces the quality of water for municipal and recreational uses and for fish and other wildlife. Erosion-control practices provide a protective cover, help to control runoff, and increase the rate of water infiltration.

Soil blowing is a major problem on sandy soils. It reduces soil fertility by removing fine soil particles and organic matter; damages crops by sandblasting; spreads diseases, insects, and weed seeds; creates health hazards and cleaning problems in urban areas that have been cleared of vegetation; and reduces air

quality. Maintaining a vegetative cover and surface mulching minimize soil blowing.

Mulching, seeding, establishing cover crops, and minimizing disturbance of the soil during fieldwork or construction reduce the hazard of erosion. Information about erosion-control measures for each kind of soil is available from the local office of the Soil Conservation Service.

Soil drainage is a major management concern on some soils that are presently used for crops and pasture. Under natural conditions, approximately 87 percent of the soils in the county are poorly drained or very poorly drained. Some soils, such as Rutlege, Pickney, and Surrency soils, are naturally so wet that growing crops or pasture plants is generally not feasible without extensive water-control systems. If a good water-control system is installed, however, these wet soils are moderately suited to many vegetable crops and improved pasture. Also, many of the poorly drained soils, such as Leon, Scranton, and Sapelo soils, have a sandy surface layer and a low available water capacity and are droughty during dry periods. If these soils are used for crops or pasture, a water-control system is needed to remove excess water during wet periods and to provide for subsurface irrigation during dry periods. The design of the system varies according to the kind of soil and the kinds of crops and pasture plants that are to be grown.

Soil fertility is naturally low in most of the soils in the county. Mineral soils that have a dark surface layer, such as Harbeson, Pickney, and Surrency soils, have the most organic matter and plant nutrients. Organic soils, however, such as Pamlico and Dorovan soils, require applications of special fertilizers because they are low in copper, selenium, and other trace elements.

Many of the soils in the county have a surface layer that is naturally strongly acid. If clover and other crops that need a neutral pH are grown on these strongly acid soils, applications of lime are required to raise the pH level. The levels of nitrogen, available phosphorus, and potash are naturally low in most of the mineral soils. On all soils, additions of lime and fertilizer should be based on the results of soil tests, on the needs of the crop, and on the expected level of yields. The Cooperative Extension Service can help in determining the kinds and amounts of fertilizer and lime required.

Soil tilth refers to the condition of the soil in relation to plant growth. It is an important factor in the germination of seeds and in the infiltration of water into the soil. Soils that have good tilth are granular and porous and can be easily cultivated. Most of the mineral soils in the county have a sandy surface layer that is light in color and low in organic matter content. Generally, the surface layer of such soils has no structure or has only weak structure. If the soil becomes very dry, a slight crust tends to form on the surface. The crust impedes the rate of infiltration and increases the runoff rate. Regular additions of crop residue and other organic material improve soil structure. Soil-improving crops and crop residue should be used to control erosion and maintain the content of organic matter.

The perennial pasture grasses grown in the county consist primarily of bahiagrass and coastal bermudagrass. Differences in the amount and kind of pasture yields are closely related to the kind of soil. Effective pasture management includes a system that maintains adequate moisture levels in droughty soils, water-control measures that remove excess surface water after heavy rains, regular applications of lime and fertilizer, and a system of pasture rotation that prevents overgrazing.

Yields per Acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 4. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification of each map unit also is shown in the table.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations are also considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in table 4 may be grown in the survey area. The local office of the Soil Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for use as cropland. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major, and generally expensive, landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for woodland, and for engineering purposes.

In the capability system, soils are generally grouped at three levels: capability class, subclass, and unit *(9)*. Only class and subclass are used in this survey.

Capability classes, the broadest groups, are designated by Roman numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class I soils have few limitations that restrict their use.

Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class III soils have severe limitations that reduce the choice of plants or that require special conservation practices, or both.

Class IV soils have very severe limitations that reduce the choice of plants or that require very special management, or both.

Class V soils are not likely to erode, but they have other limitations, impractical to remove, that limit their use.

Class VI soils have severe limitations that make them unsuitable for cultivation.

Class VII soils have very severe limitations that make them unsuitable for cultivation.

Class VIII soils and miscellaneous areas have limitations that nearly preclude their use for commercial crop production.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, IIw. The letter *e* shows that the main hazard is the risk of erosion unless a close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c,* used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

There are no subclasses in class I because the soils of this class have few limitations. The soils in class V are subject to little or no erosion, but they have other limitations that restrict their use to pasture, rangeland, woodland, wildlife habitat, or recreation. Class V contains only the subclasses indicated by *w, s,* or *c.*

The capability classification of each map unit is given in the section "Detailed Soil Map Units" and in the yields table.

Rangeland

In areas that have similar climate and topography, differences in the kind and amount of vegetation produced on rangeland are closely related to the kind of soil. Effective management is based on the relationship between the soils and vegetation and water.

In Franklin County native grasses, forbs, and browse plants have the potential to produce significant forage for livestock. At the present time only a portion of this resource is being utilized.

A *range site* is a distinctive kind of rangeland that produces a characteristic climax plant community that differs from natural plant communities on other range sites in kind, amount, and proportion of range plants. The relationship between soils and vegetation was ascertained during this survey; thus, range sites generally can be determined directly from the soil map. Soil properties that affect moisture supply and plant nutrients have the greatest influence on the productivity of range plants. Soil reaction, salt content, and a seasonal high water table are also important.

Range management requires a knowledge of the kinds of soil and of the potential climax plant community. It also requires an evaluation of the present range condition. Range condition is determined by comparing the present plant community with the climax plant community on a particular range site. The more closely the existing community resembles the climax community, the better the range condition. Range condition is an ecological rating only. It does not have a specific meaning that pertains to the present plant community in a given use.

The objective in range management is to control grazing so that the plants growing on a site are about the same in kind and amount as the potential climax plant community for that site. Such management generally results in the optimum production of vegetation, control of undesirable brush species, conservation of water, and control of erosion. Sometimes, however, a range condition somewhat

below the potential meets grazing needs, provides wildlife habitat, and protects soil and water resources.

Four range sites make up significant acreages in Franklin County. The North Florida Flatwoods range site is of greatest extent and occurs in nearly all parts of the county. The Longleaf Pine-Turkey Oak Hills and Sand Pine Scrub range sites occur on the sandhills and on the drier soils in the low uplands. The Slough range site occurs in broad sloughs.

The North Florida Flatwoods range site occurs as areas of nearly level soils that support tall grasses and an overstory of slash pine, loblolly pine, or longleaf pine. If good grazing management practices are followed, the site has the potential to produce significant amounts of creeping bluestem, lopsided indiangrass, chalky bluestem, and Curtis dropseed. If the range deteriorates because of poor grazing management practices, the site is dominated by saw palmetto and pineland threeawn (wiregrass). This site occurs as areas of the Albany, Chaires, Hurricane, Leefield, Leon, Lynn Haven, Pelham, Plummer, Ridgewood, Sapelo, Scranton, Stilson, Meadowbrook, and Tooles soils.

The Longleaf Pine-Turkey Oak Hills range site occurs as rolling areas that have nearly level to steep slopes. The soils in this site support scattered longleaf pine and turkey oak. Natural fertility is low because of the rapid movement of plant nutrients and water through the soil. Important forage species include creeping bluestem, purple bluestem, and indiangrass. The Longleaf Pine-Turkey Oak Hills range site provides winter shelter for cattle and cover for wildlife. The potential for producing high-quality forage grasses is moderately low. This site occurs as areas of the Blanton, Kershaw, and Ortega soils.

The Sand Pine Scrub range site occurs as areas of soils that support an association of sand pine, sand live oak, and bluejack oak. Important forage species include creeping bluestem, purple bluestem, indiangrass, and beaked panicum. Because of the droughty nature of the soils, the Sand Pine Scrub range site has low potential for producing native forage. The vegetation on the site provides summer shade, winter cover, and dry bedding ground during wet periods. This site occurs as areas of the Kureb and Resota soils and in the drier coastal areas of the Mandarin soils.

If the Slough range site is in excellent condition, it is dominated by blue maidencane, chalky bluestem, toothachegrass, and plumegrass. The site also supports scattered cypress, sweetbay, and black titi. Average production is moderately high. Under poor conditions, bottlebrush threeawn, sand cordgrass, muhly, threeawn, and St Johnswort dominate. This site occurs as areas of the Scranton and Meadowbrook soils.

Woodland Management and Productivity

About 317,000 acres, or 91 percent of Franklin County, is forest land. The county has over 34,200 acres of federally owned land, of which about 21,800 acres is in the Apalachicola National Forest. About 86 percent of the nonfederal land is owned by large companies that make woodland products.

Slash pine is the dominant species grown in the county, especially in the flatwoods. The flatwoods make up about 68 percent of the forest land in the county. In the flatwoods, sparse stands of pine are clearcut and replaced with improved slash pine. Black titi, waxmyrtle, and slash pine are the primary species in the wet areas of the flatwoods and in drainageways in the central part of the county. The major soils that support native slash pine communities and commercial plantations are Leon, Lynn Haven, Meadowbrook, Scranton, Sapelo, Pelham, Plummer, and Tooles soils.

Areas that support longleaf pine, loblolly pine, and sand pine and mixed hardwood forest make up about 14 percent of the forest land in the county. The sandhills in eastern Franklin County and small areas on gulf and bay coast ridges support longleaf pine, sand pine, bluejack oak, live oak, turkey oak, and scrub oak. Gradually, the stands of longleaf pine and oak are being replaced with planted stands of slash pine and sand pine. The major soils of the sandhill areas include Kershaw, Kureb, Ortega, Mandarin, Resota, and Ridgewood soils.

The upland areas in northwestern Franklin County support longleaf pine and loblolly pine as well as mixed hardwoods. Many of these areas are within the Apalachicola National Forest. Many of the private lands nearby were cleared and now support stands of improved slash pine. The major soils in the uplands are Albany, Blanton, Lynchburg, Leefield, and Stilson soils.

Laurel oak, tupelo gum, blackgum, overcup oak, cypress, red maple, sweetgum, magnolia, and slash pine grow on the flood plains along the Apalachicola, Ochlockonee, Crooked, and New Rivers. These areas have been used extensively for logging in the past, but timber harvesting is not currently feasible because of the size of the trees, the low commercial value of many species, and the difficulty of working on the flood plain soils. Also, much of the extensive Apalachicola River flood plain is federally owned or is owned by the State. The major soils on the flood plains are Brickyard, Chowan, Meggett, Pamlico, Pickney, Meadowbrook, Tooles, and Wehadkee soils.

The depressions, sloughs, and small creeks in the county support black titi, swamp cyrilla, cypress, Atlantic white-cedar, bay, and slash pine. In these areas trees are harvested and planted when the water table is low

so that heavy equipment can be used. Some hand planting is necessary when the soils are wet. Many of the soils in these areas are only marginally suitable or are unsuitable for growing pines because of wetness. The major soils in these areas are Harbeson, Meadowbrook, Pickney, Pamlico, Rutlege, Scranton, and Surrency soils.

Timber management in the county ranges from intensive clearcutting, bedding, and planting to selective cutting. Prescribed burning of pine stands can reduce plant competition and exposes mineral soils as a bed for young pine seedlings. Burning also encourages the growth of grasses and forbs that help to support various wildlife species, such as deer, turkey, and quail. Many corporate and private landowners apply phosphorus and nitrogen fertilizer at planting time and midrotation.

Several small lumber mills are located in Franklin County. They process timber primarily for the construction of small buildings.

Soils vary in their ability to produce trees. Available water capacity and depth of the root zone have major effects on tree growth. Fertility and texture also influence tree growth. Elevation, aspect, and climate determine the kinds of trees that can grow on a site. Elevation and aspect are of particular importance in mountainous areas.

This soil survey can be used by woodland managers planning ways to increase the productivity of forest land. Some soils respond better to applications of fertilizer than others, and some are more susceptible to landslides and erosion after roads are built and timber is harvested. Some soils require special reforestation efforts. In the section "Detailed Soil Map Units," the description of each map unit in the survey area suitable for timber includes information about productivity, limitations in harvesting timber, and management concerns in producing timber. Table 5 summarizes this forestry information and rates the soils for a number of factors to be considered in management. *Slight, moderate,* and *severe* are used to indicate the degree of the major soil limitations to be considered in forest management.

Table 5 lists the *ordination symbol* for each soil. The first part of the ordination symbol, a number, indicates the potential productivity of a soil for the indicator species in cubic meters per hectare. The larger the number, the greater the potential productivity. Potential productivity is based on the site index and the point where mean annual increment is the greatest.

The second part of the ordination symbol, a letter, indicates the major kind of soil limitation affecting use and management. The letter *R* indicates a soil that has a significant limitation because of steepness of slope. The letter *X* indicates that a soil has restrictions because of stones or rocks on the surface. The letter *W* indicates a soil in which excessive water, either seasonal or year-round, causes a significant limitation. The letter *T* indicates a soil that has, within the root zone, excessive alkalinity or acidity, sodium salts, or other toxic substances that limit the development of desirable trees. The letter *D* indicates a soil that has a limitation because of a restricted rooting depth, such as a shallow soil that is underlain by hard bedrock, a hardpan, or other layers that restrict roots. The letter *C* indicates a soil that has a limitation because of the kind or amount of clay in the upper part of the profile. The letter *S* indicates a dry, sandy soil. The letter *F* indicates a soil that has a large amount of coarse fragments. The letter *A* indicates a soil having no significant limitations that affect forest use and management. If a soil has more than one limitation, the priority is as follows: R, X, W, T, D, C, S, and F.

Ratings of the *erosion hazard* indicate the probability that damage may occur if site preparation or harvesting activities expose the soil. The risk is *slight* if no particular preventive measures are needed under ordinary conditions; *moderate* if erosion-control measures are needed for particular silvicultural activities; and *severe* if special precautions are needed to control erosion for most silvicultural activities. Ratings of moderate or severe indicate the need for construction of higher standard roads, additional maintenance of roads, additional care in planning harvesting and reforestation activities, or the use of special equipment.

Ratings of *equipment limitation* indicate limits on the use of forest management equipment, year-round or seasonal, because of such soil characteristics as slope, wetness, stoniness, and susceptibility of the surface layer to compaction. As slope gradient and length increase, it becomes more difficult to use wheeled equipment. On the steeper slopes, tracked equipment is needed. On the steepest slopes, even tracked equipment cannot be operated and more sophisticated systems are needed. The rating is *slight* if equipment use is restricted by wetness for less than 2 months and if special equipment is not needed. The rating is *moderate* if slopes are so steep that wheeled equipment cannot be operated safely across the slope, if wetness restricts equipment use from 2 to 6 months per year, if stoniness restricts the use of ground-based equipment, or if special equipment is needed to prevent or minimize compaction. The rating is *severe* if slopes are so steep that tracked equipment cannot be operated safely across the slope, if wetness restricts equipment use for more than 6 months per year, if stoniness restricts the use of ground-based equipment, or if special equipment is needed to prevent or minimize compaction. Ratings of moderate or severe indicate a need to choose the

most suitable equipment and to carefully plan the timing of harvesting and other management activities.

Ratings of *seedling mortality* refer to the probability of the death of naturally occurring or properly planted seedlings of good stock in periods of normal rainfall, as influenced by kinds of soil or topographic features. Seedling mortality is caused primarily by too much water or too little water. The factors used in rating a soil for seedling mortality are texture of the surface layer, depth to a seasonal high water table and the length of the period when the water table is high, rock fragments in the surface layer, rooting depth, and the aspect of the slope. The mortality rate generally is highest on soils that have a sandy or clayey surface layer. The risk is *slight* if, after site preparation, expected mortality is less than 25 percent; *moderate* if expected mortality is between 25 and 50 percent; and *severe* if expected mortality exceeds 50 percent. Ratings of moderate or severe indicate that it may be necessary to use containerized or larger than usual planting stock or to make special site preparations, such as bedding, furrowing, installing a surface drainage system, and providing artificial shade for seedlings. Reinforcement planting is often needed if the risk is moderate or severe.

Ratings of *windthrow hazard* indicate the likelihood that trees will be uprooted by the wind. A restricted rooting depth is the main reason for windthrow. The rooting depth can be restricted by a high water table, a fragipan, or bedrock or by a combination of such factors as soil wetness, texture, structure, and depth. The risk is *slight* if strong winds cause trees to break but do not uproot them; *moderate* if strong winds cause an occasional tree to be blown over and many trees to break; and *severe* if moderate or strong winds commonly blow trees over. Ratings of moderate or severe indicate that care is needed in thinning or that the stand should not be thinned at all. Special equipment may be needed to prevent damage to shallow root systems in partial cutting operations. A plan for the periodic removal of windthrown trees and the maintenance of a road and trail system may be needed.

Ratings of *plant competition* indicate the likelihood of the growth or invasion of undesirable plants. Plant competition is more severe on the more productive soils, on poorly drained soils, and on soils having a restricted root zone that holds moisture. The risk is *slight* if competition from undesirable plants hinders adequate natural or artificial reforestation but does not necessitate intensive site preparation and maintenance. The risk is *moderate* if competition from undesirable plants hinders natural or artificial reforestation to the extent that intensive site preparation and maintenance are needed. The risk is *severe* if competition from undesirable plants prevents adequate natural or artificial reforestation unless the site is intensively prepared and maintained. A moderate or severe rating indicates the need for site preparation to ensure the development of an adequately stocked stand. Managers must plan site preparation measures to ensure reforestation without delays.

The *potential productivity* of *common trees* on a soil is expressed as a *site index*. Common trees are listed in the order of their observed general occurrence. Generally, only two or three tree species dominate. The first tree listed for each soil is the indicator species for that soil. An indicator species is a tree that is common in the area and that is generally the most productive on a given soil.

The *site index* is determined by taking height measurements and determining the age of selected trees within stands of a given species. This index is the average height, in feet, that the trees attain in a specified number of years. This index applies to fully stocked, even-aged, unmanaged stands.

The *productivity class* represents an expected volume produced by the most important trees, expressed in cubic meters per hectare per year calculated at the age of culmination of mean annual increment.

Trees to plant are those that are used for reforestation or, under suitable conditions, natural regeneration. They are suited to the soils and can produce a commercial wood crop. The desired product, topographic position (such as a low, wet area), and personal preference are three factors among many that can influence the choice of trees for use in reforestation.

More detailed information on woodland and forest management can be obtained at the local offices of the Florida Division of Forestry, the Soil Conservation Service, the Florida Cooperative Extension Service, and the Agricultural Stabilization and Conservation Service.

Environmental Plantings

Environmental plantings help to beautify and screen houses and other buildings and to abate noise. The plants, mostly evergreen shrubs and trees, are closely spaced. To ensure plant survival, a healthy planting stock of suitable species should be planted properly on a well prepared site and maintained in good condition. Coastal plantings help to control soil blowing and water erosion.

Additional information about environmental plantings and caring for trees and shrubs can be obtained from local offices of the Soil Conservation Service or the Cooperative Extension Service or from a nursery.

Recreation

In table 6, the soils of the survey area are rated according to the limitations that affect their suitability for recreation. The ratings are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation are also important. Soils subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

In table 6, the degree of soil limitation is expressed as slight, moderate, or severe. *Slight* means that soil properties are generally favorable and that limitations are minor and easily overcome. *Moderate* means that limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or by a combination of these measures.

The information in table 6 can be supplemented by other information in this survey, for example, interpretations for septic tank absorption fields in table 9 and interpretations for dwellings without basements and for local roads and streets in table 8.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils have gentle slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing campsites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for picnic areas are firm when wet, are not dusty when dry, are not subject to flooding during the period of use, and do not have slopes, stones, or boulders that increase the cost of shaping sites or of building access roads and parking areas.

Playgrounds require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the season of use. The surface is free of stones and boulders, is firm after rains, and is not dusty when dry. If grading is needed, the depth of the soil over bedrock or a hardpan should be considered.

Paths and trails for hiking and horseback riding should require little or no cutting and filling. The best soils are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once a year during the period of use. They have moderate slopes and few or no stones or boulders on the surface.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. The best soils for use as golf fairways are firm when wet, are not dusty when dry, and are not subject to prolonged flooding during the period of use. They have moderate slopes and no stones or boulders on the surface. The suitability of the soil for tees or greens is not considered in rating the soils.

Wildlife Habitat

John F. Vance, Jr., biologist, Soil Conservation Service, helped prepare this section.

Diverse and abundant fish and wildlife resources are valuable commercial, recreational, and esthetic assets in Franklin County. The wildlife habitat in many areas of the county is characterized by the interspersion of diverse natural communities, including pine flatwoods, swamps and marshes, rivers, hammocks, and sandhills. Other areas are vast and uniform, such as portions of the forested Apalachicola River flood plain. Some areas feature a gradual transition from one natural community to another. The transition from forested flood plain to estuarine delta marshes of the Apalachicola River is an example. The wide variety of habitat characteristics in the county produces a great diversity of wildlife species.

The pattern of land use and ownership in Franklin County is a major factor contributing to the extensive availability of wildlife habitat. In 1989, more than 95 percent of the land area was owned by the Federal and State government, the forest industry, and private woodland owners. Federal land within the county includes the St. Vincent National Wildlife Refuge, which is more than 12,000 acres, and 21,800 acres of the Apalachicola National Forest. State land includes the 1,900-acre St. George Island State Park, the 2,700-acre Cape St. George State Preserve, and other large tracts, such as the Apalachicola Wildlife and Environmental Area and the Northwest Florida Water Management District. Many other smaller tracts have been acquired by the state as environmental buffers or preservation

areas. Also located in the county is the Apalachicola National Estuarine Research Reserve, which plays a role in environmental research, education, and the coordination of volunteers and provides management advice regarding all State and Federal lands in the county.

Primary game species in Franklin County include white-tailed deer, squirrels, turkey, bobwhite quail, mourning dove, feral hogs, and waterfowl. One exotic game species of special note is the imported Asian sambur deer, found only on St. Vincent Island. Common nongame species include raccoon, rabbit, opossum, skunks, otter, gray fox, red fox, and bobcat and a variety of songbirds, wading and shore birds, predatory birds, reptiles, and amphibians.

There are about 30 freshwater lakes and ponds in the county, most of which are smaller than 25 acres. The largest are Oyster Pond and Tucker Lake. The lakes and rivers provide good sport fishing. Game and nongame species include largemouth bass, channel catfish, bullhead catfish, bluegill, redear sunfish, spotted sunfish, warmouth, black crappie, chain pickerel, gar, bowfin, and suckers. Saltwater species include spotted trout, spot, croaker, striped mullet, flounder, and red drum.

There are a number of endangered and threatened species in Franklin County. In 1985, the Florida Game and Freshwater Fish Commission listed 17 endangered species, 13 threatened species, and 23 species of special concern. These range from the rarely seen red-cockaded woodpecker to the more common southeastern kestrel. The Atlantic loggerhead turtle is an example of a threatened migratory species that utilizes habitat in the county. It visits the area beaches annually during the summer and lays its eggs. A detailed list of endangered and threatened species and information on their range and habitat needs are available from the district conservationist at the local office of the Soil Conservation Service or at the office of the Apalachicola National Estuarine Research Reserve.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 7, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flooding. Soil temperature and soil moisture are also considerations. Examples of grain and seed crops are corn, soybeans, wheat, browntop millet, and grain sorghum.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flooding, and slope. Soil temperature and soil moisture are also considerations. Examples of grasses and legumes are bahiagrass, lovegrass, Florida beggarweed, clover, and sesbania.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flooding. Soil temperature and soil moisture are also considerations. Examples of wild herbaceous plants are bluestem, goldenrod, partridge pea, and bristlegrasses.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone,

available water capacity, and wetness. Examples of these plants are oak, palmetto, cherry, sweetgum, wild grape, hawthorn, dogwood, hickory, blackberry, and blueberry. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are firethorn, wild plum, and American beautyberry.

Coniferous plants furnish browse, seeds, and cones. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine, cypress, cedar, and juniper.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, wildrice, saltgrass, cordgrass, rushes, sedges, and reeds.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. Wildlife attracted to these areas include bobwhite quail, dove, meadowlark, field sparrow, cottontail, and red fox.

Habitat for woodland wildlife consists of areas of deciduous plants or coniferous plants or both and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, thrushes, woodpeckers, squirrels, gray fox, raccoon, deer, and bear.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, otters, mink, beaver, and alligators.

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the estimated data and test data in the "Soil Properties" section.

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil within a depth of 5 or 6 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 or 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kind of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil

maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the "Glossary."

Building Site Development

Table 8 shows the degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. Special feasibility studies may be required where the soil limitations are severe.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, and other purposes. The ratings are based on soil properties, site features, and observed performance of the soils. The ease of digging, filling, and compacting is affected by the depth to bedrock, a cemented pan, or a very firm dense layer, stone content, soil texture, and slope. The time of the year that excavations can be made is affected by the depth to a seasonal high water table and the susceptibility of the soil to flooding. The resistance of the excavation walls or banks to sloughing or caving is affected by soil texture and depth to the water table.

Dwellings and *small commercial buildings* are structures built on shallow foundations on undisturbed soil. The load limit is the same as that for single-family dwellings no higher than three stories. Ratings are made for small commercial buildings without basements, for dwellings with basements, and for dwellings without basements. The ratings are based on soil properties, site features, and observed performance of the soils. A high water table, flooding, shrinking and swelling, and organic layers can cause the movement of footings. Depth to a high water table, depth to bedrock or to a cemented pan, large stones, and flooding affect the ease of excavation and construction. Landscaping and grading that require cuts and fills of more than 5 or 6 feet are not considered.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or stabilized soil material; and a flexible or rigid surface. Cuts and fills are generally limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. Depth to bedrock or to a cemented pan, depth to a high water table, flooding, large stones, and slope affect the ease of excavating and grading. Soil strength (as inferred from the engineering classification of the soil), shrink-swell potential, frost-action potential, and depth to a high water table affect the traffic-supporting capacity.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. The ratings are based on soil properties, site features, and observed performance of the soils. Soil reaction, depth to a high water table, depth to bedrock or to a cemented pan, the available water capacity in the upper 40 inches, and the content of salts, sodium, and sulfidic materials affect plant growth. Flooding, wetness, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer affect trafficability after vegetation is established.

Sanitary Facilities

Table 9 shows the degree and the kind of soil limitations that affect septic tank absorption fields, sewage lagoons, and sanitary landfills. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required.

Table 9 also shows the suitability of the soils for use as daily cover for landfill. A rating of *good* indicates that soil properties and site features are favorable for the use and that good performance and low maintenance can be expected; *fair* indicates that soil properties and site features are moderately favorable for the use and one or more soil properties or site features make the soil less desirable than the soils rated good; and *poor* indicates that one or more soil properties or site features are unfavorable for the use and overcoming the unfavorable properties requires special design, extra maintenance, or costly alteration.

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that

part of the soil between depths of 24 and 72 inches is evaluated. The ratings are based on soil properties, site features, and observed performance of the soils. Permeability, depth to a high water table, depth to bedrock or to a cemented pan, and flooding affect absorption of the effluent. Large stones and bedrock or a cemented pan interfere with installation.

Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and hillside seepage, can affect public health. Ground water can be polluted if highly permeable sand and gravel or fractured bedrock is less than 4 feet below the base of the absorption field, if slope is excessive, or if the water table is near the surface. There must be unsaturated soil material beneath the absorption field to filter the effluent effectively. Many local ordinances require that this material be of a certain thickness.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Lagoons generally are designed to hold the sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water.

Table 9 gives ratings for the natural soil that makes up the lagoon floor. The surface layer and, generally, 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, depth to a high water table, depth to bedrock or to a cemented pan, flooding, large stones, and content of organic matter.

Excessive seepage resulting from rapid permeability in the soil or a water table that is high enough to raise the level of sewage in the lagoon causes a lagoon to function unsatisfactorily. Pollution results if seepage is excessive or if floodwater overtops the lagoon. A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor.

Sanitary landfills are areas where solid waste is disposed of by burying it in soil. There are two types of landfill—trench and area. In a trench landfill, the waste is placed in a trench. It is spread, compacted, and covered daily with a thin layer of soil excavated at the site. In an area landfill, the waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site.

Both types of landfill must be able to bear heavy vehicular traffic. Both types involve a risk of ground-water pollution. Ease of excavation and revegetation should be considered.

The ratings in table 9 are based on soil properties, site features, and observed performance of the soils. Permeability, depth to bedrock or to a cemented pan, depth to a water table, slope, and flooding affect both types of landfill. Texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium affect trench landfills. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, a limitation rated slight or moderate may not be valid. Onsite investigation is needed.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste.

Soil texture, wetness, coarse fragments, and slope affect the ease of removing and spreading the material during wet and dry periods. Loamy or silty soils that are free of large stones or excess gravel are the best cover for a landfill. Clayey soils are sticky or cloddy and are difficult to spread; sandy soils are subject to soil blowing.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as final cover for a landfill should be suitable for plants. The surface layer generally has the best workability, more organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

Construction Materials

Table 10 gives information about the soils as a source of roadfill, sand, gravel, and topsoil. The soils are rated *good, fair,* or *poor* as a source of roadfill and topsoil. They are rated as a *probable* or *improbable* source of sand and gravel. The ratings are based on soil properties and site features that affect the removal of the soil and its use as construction material. Normal compaction, minor processing, and other standard construction practices are assumed. Each soil is evaluated to a depth of 5 or 6 feet.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the soil material below the surface

layer to a depth of 5 or 6 feet. It is assumed that soil layers will be mixed during excavating and spreading. Many soils have layers of contrasting suitability within their profile. The table showing engineering index properties provides detailed information about each soil layer. This information can help to determine the suitability of each layer for use as roadfill. The performance of soil after it is stabilized with lime or cement is not considered in the ratings.

The ratings are based on soil properties, site features, and observed performance of the soils. The thickness of suitable material is a major consideration. The ease of excavation is affected by large stones, a high water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the engineering classification of the soil) and shrink-swell potential.

Soils rated *good* contain significant amounts of sand or gravel or both. They have at least 5 feet of suitable material, a low shrink-swell potential, few cobbles and stones, and slopes of 15 percent or less. Depth to the water table is more than 3 feet. Soils rated *fair* are more than 35 percent silt- and clay-sized particles and have a plasticity index of less than 10. They have a moderate shrink-swell potential, slopes of 15 to 25 percent, or many stones. Depth to the water table is 1 to 3 feet. Soils rated *poor* have a plasticity index of more than 10, a high shrink-swell potential, many stones, or slopes of more than 25 percent. They are wet and have a water table at a depth of less than 1 foot. These soils may have layers of suitable material, but the material is less than 3 feet thick.

Sand and *gravel* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In table 10, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the engineering classification of the soil), the thickness of suitable material, and the content of rock fragments. Kinds of rock, acidity, and stratification are given in the soil series descriptions. Gradation of grain sizes is given in the table on engineering index properties.

A soil rated as a probable source has a layer of clean sand or gravel or a layer of sand or gravel that is up to 12 percent silty fines. This material must be at least 3 feet thick and less than 50 percent, by weight, large stones. All other soils are rated as an improbable source. Coarse fragments of soft bedrock, such as shale and siltstone, are not considered to be sand and gravel.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area.

Plant growth is affected by toxic material and by such properties as soil reaction, available water capacity, and fertility. The ease of excavating, loading, and spreading is affected by rock fragments, slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a water table, rock fragments, bedrock, and toxic material.

Soils rated *good* have friable, loamy material to a depth of at least 40 inches. They are free of stones and cobbles, have little or no gravel, and have slopes of less than 8 percent. They are low in content of soluble salts, are naturally fertile or respond well to fertilizer, and are not so wet that excavation is difficult.

Soils rated *fair* are sandy soils, loamy soils that have a relatively high content of clay, soils that have only 20 to 40 inches of suitable material, soils that have an appreciable amount of gravel, stones, or soluble salts, or soils that have slopes of 8 to 15 percent. The soils are not so wet that excavation is difficult.

Soils rated *poor* are very sandy or clayey, have less than 20 inches of suitable material, have a large amount of gravel, stones, or soluble salts, have slopes of more than 15 percent, or have a seasonal high water table at or near the surface.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and releases a variety of plant-available nutrients as it decomposes.

Water Management

Table 11 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed excavated ponds. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

This table also gives the restrictive features that affect each soil for drainage, irrigation, and terraces and diversions.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock, to a cemented pan, or to other layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; susceptibility to flooding; and subsidence of organic layers. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock or to a cemented pan, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts, sodium, or sulfur. Availability of drainage outlets is not considered in the ratings.

Irrigation is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The construction of a system is affected by large stones and depth to bedrock or to a cemented pan. The performance of a system is affected by the depth of the root zone, the amount of salts or sodium, and soil reaction.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to control erosion and conserve moisture by intercepting runoff. Slope, wetness, large stones, and depth to bedrock or to a cemented pan affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of soil blowing or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features, listed in tables, are explained on the following pages.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine grain-size distribution, plasticity, and compaction characteristics. These results are reported in table 18.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classification, and the physical and chemical properties of the major layers of each soil. Pertinent soil and water features also are given.

Engineering Index Properties

Table 12 gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each soil series under the heading "Soil Series and Their Morphology."

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is as much as 15 percent, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the "Glossary."

Classification of the soils is determined according to the Unified soil classification system *(2)* and the system adopted by the American Association of State Highway and Transportation Officials *(1)*.

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, SP-SM.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20, or higher, for the poorest.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074

millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

Physical and Chemical Properties

Table 13 shows estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Clay as a soil separate, or component, consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each major soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay greatly affect the fertility and physical condition of the soil. They determine the ability of the soil to adsorb cations and to retain moisture. They influence the shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at ⅓-bar moisture tension. Weight is determined after drying the soil at 105 degrees C. In this table, the estimated moist bulk density of each major soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. A bulk density of more than 1.6 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability refers to the ability of a soil to transmit water or air. The estimates indicate the rate of movement of water through the soil when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage in each major soil layer is stated in inches of water per inch of soil. The capacity varies, depending on soil properties that affect the retention of water and the depth of the root zone. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Soil reaction is a measure of acidity or alkalinity and is expressed as a range in pH values. The range in pH of each major horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Salinity is a measure of soluble salts in the soil at saturation. It is expressed as the electrical conductivity of the saturation extract, in millimhos per centimeter at 25 degrees C. Estimates are based on field and laboratory measurements at representative sites of nonirrigated soils. The salinity of irrigated soils is affected by the quality of the irrigation water and by the frequency of water application. Hence, the salinity of soils in individual fields can differ greatly from the value given in the table. Salinity affects the suitability of a soil for crop production, the stability of soil if used as construction material, and the potential of the soil to corrode metal and concrete.

Shrink-swell potential is the potential for volume change in a soil with a loss or gain in moisture. Volume change occurs mainly because of the interaction of clay minerals with water and varies with the amount and type of clay minerals in the soil. The size of the load on the soil and the magnitude of the change in soil moisture content influence the amount of swelling of soils in place. Laboratory measurements of swelling of undisturbed clods were made for many soils. For others, swelling was estimated on the basis of the kind and amount of clay minerals in the soil and on measurements of similar soils.

If the shrink-swell potential is rated moderate to very high, shrinking and swelling can cause damage to buildings, roads, and other structures. Special design is often needed.

Shrink-swell potential classes are based on the change in length of an unconfined clod as moisture content is increased from air-dry to field capacity. The classes are *low*, a change of less than 3 percent; *moderate*, 3 to 6 percent; and *high*, more than 6 percent. *Very high*, more than 9 percent, is sometimes used.

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) to predict the average annual rate of soil loss by sheet and rill erosion. Losses are expressed in tons per acre per year. These estimates are based primarily on percentage of silt, sand, and organic matter (up to 4 percent) and on soil structure and permeability. Values of K range from 0.02 to 0.69. The higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur over a sustained period without affecting crop productivity. The rate is expressed in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their resistance to soil blowing in cultivated areas. The groups indicate the susceptibility to soil blowing. Soils are grouped according to the following distinctions:

1. Coarse sands, sands, fine sands, and very fine sands. These soils are generally not suitable for crops. They are extremely erodible, and vegetation is difficult to establish.

2. Loamy coarse sands, loamy sands, loamy fine sands, loamy very fine sands, and sapric soil material. These soils are very highly erodible. Crops can be grown if intensive measures to control soil blowing are used.

3. Coarse sandy loams, sandy loams, fine sandy loams, and very fine sandy loams. These soils are highly erodible. Crops can be grown if intensive measures to control soil blowing are used.

4L. Calcareous loams, silt loams, clay loams, and silty clay loams. These soils are erodible. Crops can be grown if intensive measures to control soil blowing are used.

4. Clays, silty clays, noncalcareous clay loams, and silty clay loams that are more than 35 percent clay. These soils are moderately erodible. Crops can be grown if measures to control soil blowing are used.

5. Noncalcareous loams and silt loams that are less than 20 percent clay and sandy clay loams, sandy clays, and hemic soil material. These soils are slightly erodible. Crops can be grown if measures to control soil blowing are used.

6. Noncalcareous loams and silt loams that are more than 20 percent clay and noncalcareous clay loams that are less than 35 percent clay. These soils are very slightly erodible. Crops can be grown if ordinary measures to control soil blowing are used.

7. Silts, noncalcareous silty clay loams that are less than 35 percent clay, and fibric soil material. These soils are very slightly erodible. Crops can be grown if ordinary measures to control soil blowing are used.

8. Soils that are not subject to soil blowing because of coarse fragments on the surface or because of surface wetness.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In table 13, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained or increased by returning crop residue to the soil. Organic matter affects the available water capacity, infiltration rate, and tilth. It is a source of nitrogen and other nutrients for crops.

Soil and Water Features

Table 14 gives estimates of various soil and water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are used to estimate runoff from precipitation. Soils are assigned to one of four groups. They are grouped according to the infiltration of water when the soils are thoroughly wet and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a permanent high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to two hydrologic groups in table 14, the first letter is for drained areas and the second is for undrained areas.

Flooding, the temporary covering of the soil surface by flowing water, is caused by overflowing streams, by runoff from adjacent slopes, or by inflow from high tides. Shallow water standing or flowing for short periods after rainfall or snowmelt is not considered flooding. Standing water in swamps and marshes or in a closed depression is considered ponding.

Table 14 gives the frequency and duration of flooding and the time of year when flooding is most likely to occur.

Frequency, duration, and probable dates of occurrence are estimated. Frequency generally is expressed as *none, rare, occasional,* or *frequent. None* means that flooding is not probable. *Rare* means that flooding is unlikely but possible under unusual weather conditions (the chance of flooding is nearly 0 percent to 5 percent in any year). *Occasional* means that flooding occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year). *Frequent* means that flooding occurs often under normal weather conditions (the chance of flooding is more than 50 percent in any year). *Common* is used when the occasional and frequent classes are grouped for certain purposes. Duration is expressed as *very brief* (less than 2 days), *brief* (2 to 7 days), *long* (7 days to 1 month), and *very long* (more than 1 month). The time of year that floods are most likely to occur is expressed in months. About two-thirds to three-fourths of all flooding occurs during the stated period.

The information on flooding is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered is local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

High water table (seasonal) is the highest level of a saturated zone in the soil in most years. The estimates are based mainly on the evidence of a saturated zone, namely grayish colors or mottles in the soil. Indicated in table 14 are the depth to the seasonal high water table; the kind of water table, that is, *perched* or *apparent;* and the months of the year that the water table commonly is highest. A water table that is seasonally high for less than 2 weeks is not indicated in table 14.

An *apparent* water table is a thick zone of free water in the soil. It is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil. A *perched* water table is water standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

Two numbers in the column showing depth to the water table indicate the normal range in depth to a saturated zone. Depth is given to the nearest half foot. The first numeral in the range indicates the highest water level. A plus sign preceding the range in depth indicates that the water table is above the surface of the soil. "More than 6.0" indicates that the water table is below a depth of 6 feet or that it is within a depth of 6 feet for less than a month.

Subsidence is the settlement of organic soils or of saturated mineral soils of very low density. Subsidence generally results from either desiccation and shrinkage or oxidation of organic material, or both, following drainage. Subsidence takes place gradually, usually over a period of several years. Table 14 shows the expected initial subsidence, which usually is a result of drainage, and total subsidence, which results from a combination of factors.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that dissolves or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors creates a severely corrosive environment. The steel in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than steel in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low, moderate,* or *high,* is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion is also expressed as *low, moderate,* or *high.* It is based on soil texture, acidity, and the amount of sulfates in the saturation extract.

Physical, Chemical, and Mineralogical Analyses of Selected Soils

Dr. Victor W. Carlisle, professor, University of Flor da, Soil Science Department and Agricultural Experiment Station, prepared this section.

Parameters for physical, chemical, and mineralogical properties of representative pedons sampled in Franklin

County are presented in tables 15, 16, and 17. The analyses were conducted and coordinated by the Soil Characterization Laboratory at the University of Florida. Detailed descriptions of the analyzed soils are given in the section "Soil Series and Their Morphology." Laboratory data and profile information for additional soils in Franklin County, as well as for other counties in Florida, are on file at the University of Florida, Soil Science Department.

Typical pedons were sampled from pits at carefully selected locations. Samples were air dried, crushed, and sieved through a 2-millimeter screen. Most analytical methods used are outlined in a soil survey investigations report *(11)*.

Particle-size distribution was determined using a modified pipette method with sodium hexametaphosphate dispersion. Hydraulic conductivity and bulk density were determined on undisturbed soil cores. Water retention parameters were obtained from duplicate undisturbed soil cores placed in tempe pressure cells. Weight percentages of water retained at 100-centimeters water (1/10-bar) and 345-centimeters water (1/3-bar) were calculated from volumetric water percentages divided by bulk density. Samples were ovendried and ground to pass a 2-millimeter sieve, and the 15-bar water retention was determined. Organic carbon was determined by a modification of the Walkley-Black wet combustion method.

Extractable bases were obtained by leaching soils with normal ammonium acetate buffered at pH 7.0. Sodium and potassium in the extract were determined by flame emission. Calcium and magnesium were determined by atomic absorption spectrophotometry. Extractable acidity was determined by the barium chloride-triethanolamine method at pH 8.2. Cation-exchange capacity was calculated by summation of extractable bases and extractable acidity. Base saturation is the ratio of extractable bases to cation-exchange capacity expressed in percent. The pH measurements were made with a glass electrode using a soil-water ratio of 1:1; a 0.01 molar calcium chloride solution in a 1:2 soil-solution ratio; and normal potassium chloride solution in a 1:1 soil-solution ratio.

Electrical conductivity determinations were made with a conductivity bridge on 1:1 soil to water mixtures. Iron and aluminum extractable in sodium dithionite-citrate were determined by atomic absorption spectrophotometry. Aluminum, carbon, and iron were extracted from probable spodic horizons with 0.1 molar sodium pyrophosphate. Determination of aluminum and iron was by atomic absorption, and determination of extracted carbon was by the Walkley-Black wet combustion method.

Mineralogy of the clay fraction less than 2 microns was ascertained by x-ray diffraction. Peak heights at 18-angstrom, 14-angstrom, 7.2-angstrom, and 4.31-angstrom positions represent montmorillonite, interstratified expandable vermiculite or 14-angstrom intergrades, kaolinite, and quartz, respectively. Peaks were measured, added, and normalized to give the percentage of soil minerals identified in the x-ray diffractograms. These percentage values do not indicate absolute determined quantities of soil minerals but do imply a relative distribution of minerals in a particular mineral suite. Absolute percentages would require additional knowledge of particle size, crystallinity, unit structure substitution, and matrix problems.

Physical Properties

The results of physical analyses are shown in table 15. Soils sampled in Franklin County for laboratory analyses are inherently very sandy; however, many of the pedons have an argillic horizon in the lower part of the solum. Except for Lynchburg loamy fine sand, Stilson fine sand, and Tooles loamy sand, all of the soils have three or more horizons in which the total content of sand is more than 90 percent. Corolla, Kershaw, Kureb, Leon, Ortega, Resota, and Ridgewood soils have more than 95 percent sand to a depth of 2 meters or more. Hurricane, Mandarin, and Scranton soils have more than 90 percent sand to a depth of 2 meters or more.

The content of clay in the soils that were sampled is rarely more than 2 percent. The content of clay in the deeper argillic horizons of the Albany, Blanton, Chaires, Leefield, Lynchburg, Meadowbrook, Pelham, Sapelo, Stilson, and Tooles soils ranges from 5.9 to 35.8 percent.

The content of silt ranges from nondetectable in several horizons of Kureb fine sand to 25.5 percent in one horizon of Lynchburg loamy sand. All horizons sampled in the Leefield, Lynchburg, Stilson, and Tooles soils contain more than 5 percent silt.

Fine sand dominates the sand fractions in most of the soils sampled. Corolla, Leon, and Ridgewood soils, however, are dominated by medium sand. All horizons of the Hurricane, Kureb, Mandarin, Ortega, Pelham, Resota, and Scranton soils contain more than 50 percent fine sand. Albany, Blanton, Chaires, Kershaw, Leefield, Lynchburg, Meadowbrook, Sapelo, Stilson, and Tooles soils also are dominated by fine sand but are less than 50 percent fine sand in some horizons. All horizons of the Corolla and Ridgewood soils contain more than 50 percent medium sand. The content of very fine sand is generally less than 5 percent, but it ranges from 5.7 to 29.4 percent in the Albany, Leefield,

Lynchburg, Pelham, Sapelo, Stilson, and Tooles soils and in one of the Scranton soils. The content of coarse sand is less than 2 percent in the Lynchburg, Mandarin, Resota, and Stilson soils. The content of coarse sand is more than 10 percent in all horizons of the Meadowbrook soil. Very coarse sand was nondetectable in the Mandarin, Resota, and Ridgewood soils and in one of the Scranton soils. The content of very coarse sand is 0.1 percent or less in the Corolla, Kershaw, Kureb, Lynchburg, and Stilson soils. It is more than 4 percent in the Meadowbrook soil. The sandy soils in Franklin County rapidly become droughty during periods of low precipitation when rainfall is widely scattered. Conversely, they are rapidly saturated during periods of heavy rainfall. Soils with inherently poor drainage, such as Leon, Chaires, and Sapelo soils, can remain saturated because the ground water is close to the surface for long periods of time.

Hydraulic conductivity values are more than 40 centimeters per hour throughout the profile in the Corolla, Kureb, Mandarin, Resota, and Ridgewood soils. Similarly, values of 40 centimeters per hour or more are recorded for one or more horizons of the Blanton, Chaires, Hurricane, Kershaw, Leon, Meadowbrook, and Ortega soils and of one of the Scranton soils. Hydraulic conductivity values in the argillic horizon of the Albany, Blanton, Chaires, Leefield, Lynchburg, Meadowbrook, Pelham, Sapelo, Stilson, and Tooles soils are rarely more than 2.0 centimeters per hour. Hydraulic conductivity values are about 1.0 centimeter per hour or less in some argillic horizons of the Chaires, Leefield, Lynchburg, Stilson, and Tooles soils. Low hydraulic conductivity values at a shallow depth can affect the design and function of septic tank absorption fields. Hydraulic conductivity values for the Bh horizon of the Chaires, Leon, Mandarin, and Sapelo soils range from 14.1 to 48.3 centimeters per hour. These values are much higher than those generally recorded for spodic horizons in most soils in Florida. In excessively sandy soils, such as Corolla, Kershaw, Kureb, Mandarin, Ortega, Resota, and Ridgewood soils, the amount of water available to plants is low.

Chemical Properties

The results of chemical analyses are shown in table 16. The soils in Franklin County have a low content of extractable bases. Except for Tooles loamy sand, all of the soils that were sampled have one or more horizons with less than 1 milliequivalent per hundred grams extractable bases. Only Blanton, Chaires, Lynchburg, Meadowbrook, Stilson, and Tooles soils have one or more horizons with more than 1 milliequivalent per hundred grams extractable bases to a depth of 2 meters or more. Chaires, Meadowbrook, and Tooles soils have horizons with more than 10 milliequivalents per hundred grams extractable bases. Blanton and Stilson soils have horizons with slightly more than 1 milliequivalent per hundred grams extractable bases. The relatively mild, humid climate of Franklin County results in a rapid depletion of basic cations (calcium, magnesium, sodium, and potassium) through leaching.

Calcium is the dominant base in most of the soils that were sampled; however, levels of magnesium are higher than those of calcium in one or more horizons of the Blanton, Leefield, Leon, Lynchburg, Pelham, and Stilson soils. Albany, Blanton, Corolla, Kureb, Leefield, Leon, Mandarin, Ortega, Pelham, Resota, Ridgewood, Sapelo, and Scranton soils contain less than 0.30 milliequivalent per hundred grams extractable calcium throughout. The content of extractable magnesium is more than 1 milliequivalent per hundred grams in only the deeper argillic horizons of Chaires sand and Lynchburg loamy fine sand. Albany, Corolla, Kershaw, Kureb, Mandarin, Ortega, Pelham, Ridgewood, Sapelo, and Scranton soils contain less than 0.10 milliequivalent per hundred grams extractable magnesium. The combined levels of extractable calcium and magnesium are rarely more than 0.50 milliequivalent per hundred grams in the surface soil. The amount of sodium generally is less than 0.10 milliequivalent per hundred grams. The amount of extractable potassium generally is 0.05 milliequivalent per hundred grams or less. Except for Lynchburg loamy fine sand, all of the soils that were sampled have one or more horizons with nondetectable amounts of extractable potassium.

Values for cation-exchange capacity, an indication of plant-nutrient capacity, are more than 10 milliequivalents per hundred grams in the surface layer of Meadowbrook sand and in the lower horizons of the Chaires, Leon, Lynchburg, Mandarin, Meadowbrook, and Tooles soils. Enhanced cation-exchange capacities parallel the higher content of clay in the argillic horizon of the Albany, Blanton, Chaires, Leefield, Lynchburg, Meadowbrook, Sapelo, Stilson, and Tooles soils. Soils that have a low cation-exchange capacity in the surface layer, such as Corolla sand, require only small amounts of lime or sulfur to significantly alter the base status and soil reaction. Generally, soils that are inherently low in fertility are associated with low values for extractable bases and a low cation-exchange capacity. Fertile soils are associated with high extractable base values, high base saturation values, and high cation-exchange capacities.

The content of organic carbon is less than 1 percent in all horizons of the Albany, Blanton, Corolla, Hurricane, Kershaw, Kureb, Leefield, Ortega, and

Ridgewood soils. It also is less than 1 percent in all horizons below the surface soil of the Lynchburg, Meadowbrook, Resota, Scranton, Stilson, and Tooles soils. Only Leon, Meadowbrook, and Pelham soils and one of the Scranton soils have a horizon with more than 2 percent organic carbon. In most of the soils, the content of organic carbon decreases rapidly with increasing depth. It increases, however, in the Bh horizon of the Chaires, Hurricane, Leon, Mandarin, and Sapelo soils. Since the content of organic carbon in the surface soil is directly related to the nutrient- and water-holding capacities of sandy soils, management practices that conserve organic carbon are highly desirable.

Electrical conductivity values are low for all of the soils sampled in Franklin County, generally ranging from 0.01 to 0.04 millimho per centimeter. Values for electrical conductivity are less than 0.01 millimho per centimeter throughout the Corolla and Ridgewood soils. These data indicate that the content of soluble salts in the soils sampled in Franklin County, except for soils in areas adjacent to the Gulf of Mexico, are insufficient to hinder the growth of salt-sensitive plants.

Soil reaction in water generally ranges from pH 4.0 to pH 5.5 in the soils that were sampled. One or more horizons of the Albany, Chaires, Corolla, Mandarin, Resota, Ridgewood, and Tooles soils have pH values outside this range. With few exceptions, the reaction is approximately 0.1 to 1.0 pH unit lower in calcium chloride and potassium chloride solutions than it is in water. The maximum availability of plant nutrients is generally attained when reaction is between pH 6.5 and 7.5. In Florida, however, maintaining reaction above pH 6.0 is not economically feasible for most kinds of agricultural production.

The ratio of sodium pyrophosphate carbon and aluminum to clay in the Bh horizon of the Chaires, Leon, Mandarin, and Sapelo soils is sufficient to meet the chemical criteria established for spodic horizons. Field morphology was used to determine the spodic horizon in Hurricane fine sand. The Bh horizon in this soil does not meet all the chemical criteria established for spodic horizons. Ratios of sodium pyrophosphate extractable iron and aluminum to citrate-dithionite extractable iron and aluminum are sufficient in all of the soils to meet the criteria for spodic horizons. Sodium pyrophosphate extractable iron ranges from 0.01 to 0.18 percent in the Bh horizon, and citrate-dithionite ranges from 0.04 to 0.24 percent.

The content of citrate-dithionite extractable iron in the Bt horizon of the Albany, Chaires, Leefield, Lynchburg, Meadowbrook, Pelham, Sapelo, Stilson, and Tooles soils ranges from 0.04 to 1.43 percent and is most frequently less than 0.50 percent. The content is higher in the Bt horizon than in the Bh horizon. The content of extractable iron and aluminum in the soils in Franklin County is not sufficient to restrict the availability of phosphorus.

Mineralogical Properties

The mineralogy of the sand fractions, which are 0.05 millimeter to 2.0 millimeters in size, is siliceous. Quartz is overwhelmingly dominant in all of the soils sampled in Franklin County. Varying amounts of heavy minerals are in most horizons. The greatest concentration is in the very fine sand fraction. The soils have no weatherable minerals. The crystalline mineral components of the clay fraction, which is less than 0.002 millimeter in size, are reported in table 17 for the major horizons of the pedons sampled. The clay mineralogical suite was made up mostly of montmorillonite, a 14-angstrom intergrade, kaolinite, and quartz.

Montmorillonite occurs in more than one-half of the pedons sampled. The 14-angstrom intergrade mineral occurs in all horizons of all of the soils, except for the surface layer of Meadowbrook sand and the argillic horizon of Tooles loamy sand. Kaolinite and quartz occur in all horizons of all the pedons sampled. The amounts of calcite, mica, and gibbsite are insufficient for the assignment of numerical values.

Montmorillonite in the soils in Franklin County appears to have been inherited from the sediments in which the soils formed. The stability of montmorillonite is generally increased by a high pH or by alkaline conditions. Montmorillonite generally occurs most abundantly in areas where the alkaline elements have not been leached by percolating rainwater; however, it can occur in moderate amounts regardless of drainage or chemical conditions. Higher amounts of montmorillonite occur most consistently in areas adjacent to the Gulf of Mexico.

The 14-angstrom intergrade, a mineral of uncertain origin, is widespread in the soils in Florida. It tends to be more prevalent under moderately acidic, relatively well drained conditions, although it occurs in a wide variety of soil environments. This mineral is a major constituent of sand grain coatings in Albany, Blanton, Hurricane, Kershaw, Ortega, Resota, and Ridgewood soils. The abundance of coatings in the Kershaw, Ortega, and Ridgewood soils, however, is not sufficient to meet taxonomic criteria established for coated Typic Quartzipsamments.

Kaolinite was most likely inherited from the parent material, or it could have formed as a weathering product of other materials. It is relatively stable in the

acidic environment of the soils throughout most of the survey area. Kaolinite is the dominant clay mineral in a majority of the pedons sampled. The weathering environment is less severe with increased soil depth; therefore, the amount of kaolinite frequently increases in the lower part of the solum. Clay-sized quartz has mainly resulted from decrements of the silt fraction.

Clay mineralogy can have a significant impact on soil properties, particularly in soils that have a higher content of clay. Soils that are dominated by montmorillonite have a higher capacity for retention of plant nutrients than soils dominated by kaolinite, 14-angstrom intergrade minerals, or quartz. None of the soils sampled has an excessive amount of montmorillonitic clay; therefore, the amount of shrinking and swelling of these soils should not create problems for most types of construction. The total content of clay influences the use and management of the soils in Franklin County more frequently than the clay mineralogy.

Engineering Index Test Data

Table 18 shows laboratory test data for several pedons sampled at carefully selected sites in the survey area. The pedons are typical of the series and are described in the section "Soil Series and Their Morphology." The soil samples were tested by the Soil Laboratory, Florida Department of Transportation, Bureau of Materials and Research.

The testing methods generally are those of the American Association of State Highway and Transportation Officials (AASHTO) or the American Society for Testing and Materials (ASTM).

The tests and methods are: AASHTO classification—M 145 (AASHTO), D 3282 (ASTM); Unified classification—D 2487 (ASTM); Mechanical analysis—T 88 (AASHTO), D 422 (ASTM), D 2217 (ASTM); Liquid limit—T 89 (AASHTO), D 4318 (ASTM); Plasticity index—T 90 (AASHTO), D 4318 (ASTM); and Moisture density, Method A—T 99 (AASHTO), D 698 (ASTM).

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories *(10)*. Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or on laboratory measurements. Table 19 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Eleven soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Entisol.

SUBORDER. Each order is divided into suborders, primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Aquent (*Aqu*, meaning water, plus *ent*, from Entisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Psammaquents (*Psamm*, meaning sand texture, plus *aquent*, the suborder of the Entisols that has an aquic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other known kind of soil. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Psammaquents.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineral content, temperature regime, depth of the root zone, consistence, moisture equivalent, slope, and permanent cracks. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is siliceous, thermic Typic Psammaquents.

SERIES. The series consists of soils that have similar horizons in their profile. The horizons are similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. There can be some variation in the texture of the surface layer or of the substratum within a series.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. The descriptions are arranged in alphabetic order.

Characteristics of the soil and the material in which it formed are identified for each series. The soil is compared with similar soils and with nearby soils of other series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the "Soil Survey Manual" *(8)*. Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" *(10)*. Unless otherwise stated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

The map units of each soil series are described in the section "Detailed Soil Map Units."

Albany Series

The Albany series consists of somewhat poorly drained, moderately permeable, nearly level soils that formed in sandy and loamy marine sediments. These soils are on low uplands and ridges in the flatwoods. A

seasonal high water table is at a depth of 12 to 30 inches for 2 to 4 months in most years. Slopes range from 0 to 2 percent. The soils are loamy, siliceous, thermic Grossarenic Paleudults.

Albany soils are closely associated with Blanton, Leefield, Meggett, Pelham, Plummer, Ridgewood, Sapelo, and Stilson soils. The somewhat poorly drained Leefield and Ridgewood soils are in landscape positions similar to those of the Albany soils. Ridgewood soils do not have an argillic horizon. Leefield soils have an argillic horizon at a depth of 20 to 40 inches. The moderately well drained Blanton and Stilson soils are in the higher landscape positions. Stilson soils contain 5 percent or more plinthite in the argillic horizon. The poorly drained Meggett, Pelham, Plummer, and Sapelo soils are in the lower landscape positions. Pelham soils have an argillic horizon within a depth of 40 inches, and Meggett soils have one within a depth of 20 inches. Sapelo soils have a spodic horizon.

Typical pedon of Albany fine sand, in a slash pine plantation; 0.1 mile west of State Highway 65 on Sumatra Cemetery Road, 2,400 feet north and 1,650 feet east of the southwest corner of sec. 30, T. 5 S., R. 7 W.

A—0 to 8 inches; dark gray (10YR 4/1) fine sand; weak fine granular structure; very friable; very strongly acid; abrupt wavy boundary.

E1—8 to 13 inches; grayish brown (10YR 5/2) fine sand; single grained; loose; very strongly acid; clear wavy boundary.

E2—13 to 22 inches; pale brown (10YR 6/3) fine sand; single grained; loose; very strongly acid; gradual wavy boundary.

E3—22 to 50 inches; light gray (10YR 7/2) fine sand; few medium distinct light gray (10YR 7/1) and many medium prominent yellow (10YR 7/6) mottles; single grained; loose; very strongly acid; clear wavy boundary.

Btg1—50 to 62 inches; light brownish gray (10YR 6/2) sandy loam; many coarse prominent brownish yellow (10YR 6/6) and common fine prominent strong brown (7.5YR 5/8) mottles; weak medium subangular blocky structure; very friable; strongly acid; clear wavy boundary.

Btg2—62 to 80 inches; light brownish gray (2.5Y 6/2) sandy clay loam; many coarse prominent gray (10YR 6/1) and brownish yellow (10YR 6/6) and common medium prominent reddish yellow (5YR 6/6) mottles; moderate medium subangular blocky structure; friable; strongly acid.

The thickness of the solum is 80 inches or more. Reaction ranges from extremely acid to medium acid in the Ap or A horizon and from very strongly acid to medium acid in the E and B horizons.

The Ap or A horizon has hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 1 or 2. It is fine sand, sand, loamy sand, or loamy fine sand. It is 6 to 10 inches thick.

The E horizon has hue of 10YR or 2.5Y, value of 5 to 8, and chroma of 1 to 6. It is mottled in shades of brown, yellow, gray, or white. It is fine sand, loamy fine sand, or loamy sand.

The Btg horizon has hue of 10YR or 2.5Y or is neutral in hue. It has value of 5 to 7 and chroma of 0 to 6. It is mottled in shades of white, gray, yellow, brown, or red. It is sandy loam, fine sandy loam, or sandy clay loam.

Bayvi Series

The Bayvi series consists of very poorly drained, rapidly permeable, nearly level soils that formed in marine and alluvial sediments in gulf coast and estuarine tidal marshes. These soils are flooded daily by normal high tides. Slopes are 0 to 1 percent. The soils are sandy, siliceous, thermic Cumulic Haplaquolls.

Bayvi soils are closely associated with Bohicket, Dirego, Rutlege, Scranton, and Tisonia soils. The very poorly drained Bohicket, Dirego, and Tisonia soils are in the tidal marshes. Bohicket soils are fine textured. Tisonia and Dirego soils have an organic surface layer. Tisonia soils are fine textured in the substratum. Dirego soils have a sandy substratum. The very poorly drained Rutlege and poorly drained Scranton soils are in the higher landscape positions outside the tidal marshes. They have a base saturation of less than 35 percent. Also, they have an A horizon that is thinner than that of the Bayvi soils.

Typical pedon of Bayvi mucky sand, in an area of Dirego and Bayvi soils, tidal, in a tidal marsh; about 300 feet east of the northwest corner of sec. 14 and about 1,000 feet south of Ochlockonee Bay, in sec. 14, T. 6 S., R. 2 W.

A1—0 to 8 inches; black (10YR 2/1) mucky sand; moderate medium granular structure; very friable; slightly acid; clear wavy boundary.

A2—8 to 26 inches; very dark gray (10YR 3/1) sand; weak fine granular structure; very friable; neutral; clear wavy boundary.

Cg—26 to 80 inches; gray (10YR 5/1) sand; light gray (10YR 7/1) patches; single grained; loose; mildly alkaline.

Reaction ranges from slightly acid to moderately alkaline throughout the profile. Some pedons have an Oa horizon, which is as much as 7 inches thick.

The A horizon is mucky loamy sand, mucky sand,

sand, or loamy sand. It has hue of 10YR or 2.5Y, value of 2 or 3, and chroma of 1 or 2. It is 24 to 42 inches thick.

The C horizon has hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 1 or 2. It is sand or loamy sand.

Blanton Series

The Blanton series consists of moderately well drained, moderately permeable, nearly level to gently sloping soils that formed in sandy and loamy marine sediments. These soils are on ridges, knolls, and side slopes adjacent to stream channels. A perched water table is above the subsoil during wet periods and is below a depth of 72 inches during the rest of the year. Slopes range from 0 to 5 percent. The soils are loamy, siliceous, thermic Grossarenic Paleudults.

Blanton soils are closely associated with Albany, Ridgewood, Ortega, and Stilson soils. Ortega and Stilson soils are in landscape positions similar to those of the Blanton soils. Ortega soils do not have an argillic horizon. Stilson soils have an argillic horizon that contains plinthite at a depth of 20 to 40 inches. The somewhat poorly drained Albany and Ridgewood soils are in the lower landscape positions. Ridgewood soils do not have an argillic horizon.

Typical pedon of Blanton fine sand, 0 to 5 percent slopes (fig. 7), in an area that supports natural vegetation; about 500 feet west and 500 feet north of the southeast corner of sec. 1, T. 6 S., R. 3 W.

Ap—0 to 6 inches; gray (10YR 5/1) fine sand; weak fine granular structure; very friable; very strongly acid; abrupt wavy boundary.

E1—6 to 31 inches; light yellowish brown (10YR 6/4) fine sand; single grained; loose; very strongly acid; gradual wavy boundary.

E2—31 to 61 inches; very pale brown (10YR 7/3) fine sand; few fine distinct reddish yellow (7.5YR 6/6) mottles in the lower 8 inches; single grained; loose; very strongly acid; clear wavy boundary.

E3—61 to 72 inches; light gray (10YR 7/2) fine sand; many medium and coarse prominent brownish yellow (10YR 6/6), strong brown (7.5YR 5/8), and yellowish red (5YR 5/8) mottles; single grained; loose; strongly acid; abrupt wavy boundary.

Bt—72 to 80 inches; light yellowish brown (2.5Y 6/4) sandy loam; many coarse prominent light gray (10YR 7/1), strong brown (7.5YR 7/8), and yellowish red (5YR 5/6) mottles; moderate medium subangular blocky structure; friable; very strongly acid.

Reaction is very strongly acid or strongly acid throughout the profile. The solum is more than 80 inches thick.

The Ap or A horizon is 6 to 12 inches thick. It has hue of 10YR, value of 4 to 6, and chroma of 1 to 3. It is fine sand or sand.

The upper part of the E horizon has hue of 10YR, value of 6 or 7, and chroma of 3 to 6. The lower part has hue of 10YR, value of 7 or 8, and chroma of 1 to 3. It commonly has brownish or yellowish mottles. The E horizon is typically 40 to 68 inches thick, but it ranges from 36 to 73 inches in thickness. It is fine sand or sand.

The Bt horizon has hue of 10YR or 2.5Y, value of 6 or 7, and chroma of 3 to 6. It has few to many mottles in shades of brown, gray, yellow, or red. The Btg horizon, if it occurs, has hue of 10YR, value of 6 or 7, and chroma of 2 and has yellowish, reddish, or brownish mottles. The Bt horizon extends to a depth of more than 80 inches. It is sandy clay loam, sandy loam, or fine sandy loam.

Bohicket Series

The Bohicket series consists of very poorly drained, very slowly permeable, nearly level soils that formed in clayey marine sediments. These soils are in estuarine and gulf coast tidal marshes. They are flooded daily by normal high tides. Slopes are less than 1 percent. The soils are fine, mixed, nonacid, thermic Typic Sulfaquents.

Bohicket soils are closely associated with Bayvi, Brickyard, Chowan, Dirego, Kenner, Maurepas, Rutlege, Scranton, and Tisonia soils. The very poorly drained Bayvi, Dirego, and Tisonia soils are in landscape positions similar to those of the Bohicket soils. Bayvi soils are sandy. Tisonia and Dirego soils are organic to a depth of 16 to 50 inches. Tisonia soils have a clayey substratum, and Dirego soils have a sandy substratum. The very poorly drained Maurepas soils are in brackish and freshwater marshes. They do not have a high content of sulfur, and they have organic soil material that is more than 51 inches thick. The very poorly drained Brickyard, Chowan, and Kenner soils are on the forested flood plain along the Apalachicola River. They are not flooded daily by normal high tides. Brickyard soils are clayey and silty throughout. Chowan and Kenner soils are stratified with organic and mineral soil material. Rutlege and Scranton soils are sandy throughout. The very poorly drained Rutlege soils are in upland swamps and are not affected by normal high tides. The poorly drained Scranton soils are in the flatwoods.

Typical pedon of Bohicket silty clay, in an area of Bohicket and Tisonia soils, tidal; about 100 feet west of

the Apalachicola River, 2,200 feet east and 1,200 feet south of the northwest corner of sec. 21, T. 5 E., R. 8 W.

A—0 to 23 inches; very dark gray (5Y 3/1) silty clay; massive; sticky; flows easily between fingers when squeezed; neutral; gradual wavy boundary.
Cg1—23 to 50 inches; black (5Y 2.5/1) silty clay; massive; sticky; flows easily between fingers when squeezed; mildly alkaline; clear wavy boundary.
Cg2—50 to 80 inches; black (N 2/0) silty clay; massive; sticky; mildly alkaline.

Reaction ranges from slightly acid to moderately alkaline throughout the profile. Some pedons have an Oa horizon, which is as much as 7 inches thick.

The A horizon has hue of 10YR to 5Y or is neutral in hue. It has value of 2 or 3 and chroma of 0 to 2. It is silty clay loam, silty clay, or clay.

The Cg horizon has hue of 10YR to 5Y or is neutral in hue. It has value of 2 to 6 and chroma of 0 to 2. It is clay, silty clay, clay loam, or the mucky analogs of these textures to a depth of 40 inches.

Bonsai Series

The Bonsai series consists of very poorly drained, moderately rapidly permeable, nearly level soils that formed in recent sandy and loamy alluvium. These soils are frequently flooded. A seasonal high water table is at or slightly above the surface for 2 to 4 months each year and is within a depth of 20 inches during the rest of the year. Slopes are generally less than 1 percent. The soils are sandy, siliceous, thermic Aeric Fluvaquents.

Bonsai soils are closely associated with Harbeson, Meadowbrook, and Scranton soils. Harbeson soils are in the lower depressions. They have a thick, dark A horizon and a loamy argillic horizon. Scranton and Meadowbrook soils are in landscape positions similar to or higher than those of the Bonsai soils. Scranton soils are sandy throughout. Meadowbrook soils have a loamy argillic horizon below a depth of 40 inches.

Typical pedon of Bonsai mucky fine sand, frequently flooded, in a dwarf cypress swamp in Tates Hell Swamp; about 1,800 feet north and 1,900 feet west of the southeast corner of sec. 25, T. 7 S., R. 6 W.

A—0 to 3 inches; very dark grayish brown (10YR 3/2) mucky fine sand; moderate medium granular structure; very friable; strongly acid; abrupt smooth boundary.
C1—3 to 11 inches; brown (10YR 5/3) fine sand; few fine distinct olive yellow (2.5Y 6/6) mottles; single grained; loose; strongly acid; clear smooth boundary.
C2—11 to 36 inches; brown (10YR 4/3) fine sand; few fine distinct olive yellow (2.5Y 6/6) mottles; single grained; loose; slightly acid; clear smooth boundary.
Cg1—36 to 46 inches; light brownish gray (10YR 6/2) loamy fine sand; thin strata of grayish brown (10YR 5/2) sandy loam and light brownish gray (10YR 6/2) fine sand; massive; friable; mildly alkaline; clear smooth boundary.
Cg2—46 to 65 inches; gray (5Y 5/1) fine sand; single grained; loose; thin strata of moderately decomposed organic material, including leaves and woody debris; clasts and strata of greenish gray (5GY 5/1) sandy loam; moderately alkaline; gradual wavy boundary.
2Cg3—65 to 80 inches; dark gray (5Y 4/1) sandy loam; massive; friable; thin strata of moderately decomposed organic material; strata of light brownish gray (10YR 6/2) fine sand; few very soft white (10YR 8/1) fragments of mollusk shells; moderately alkaline.

Reaction ranges from very strongly acid to neutral in the A and C horizons and from medium acid to moderately alkaline in the Cg horizon. In most pedons a thick mat of coarse and medium cypress roots is in the C2 horizon and ends abruptly in or above the Cg1 horizon. Thin strata of sandy loam or finer textured soil, typically less than 0.5 inch thick, are within a depth of 40 inches.

The A horizon has hue of 10YR. It has value of 3 and chroma of 1 to 4, value of 4 or 5 and chroma of 2 or 3, or value of 6 and chroma of 1 or 2. It is sand, fine sand, loamy sand, loamy fine sand, or the mucky analogs of these textures.

Some pedons have an AC horizon. This horizon has textures similar to those of the A horizon and colors intermediate between those of the A horizon and the C1 horizon.

The C horizon has hue of 10YR. It has value of 4 or 5 and chroma of 2 or 3 or has value of 6 and chroma of 3. It has distinct or prominent mottles in shades of yellow, brown, or gray. It is sand, fine sand, loamy sand, or loamy fine sand.

The Cg horizon has hue of 10YR, value of 4 to 6, and chroma of 1 or 2 or has hue of 2.5Y to 5GY, value of 4 or 5, and chroma of 1. It is sand, fine sand, loamy sand, loamy fine sand, sandy loam, or fine sandy loam. It has strata of alternating mineral or organic material, including leaves and woody debris. The strata are commonly 0.5 inch to 3.0 inches thick.

The 2Cg horizon, if it occurs, has hue of 2.5Y to 5GY, value of 4 or 5, and chroma of 1. It is sandy loam,

fine sandy loam, or sandy clay loam. In some pedons it has no fragments of mollusk shells.

Brickyard Series

The Brickyard series consists of very poorly drained, slowly permeable, nearly level soils that formed in loamy alluvial sediments. These soils are on the flood plains along the Apalachicola River and its distributaries. They are frequently flooded. A seasonal high water table is at or near the surface for 6 months in most years. Slopes are generally less than 1 percent. The soils are fine, montmorillonitic, nonacid, thermic Aeric Fluvaquents.

Brickyard soils are closely associated with Bohicket, Chowan, Kenner, Maurepas, Meggett, Plummer, Rutlege, Scranton, Tisonia, and Wehadkee soils. The very poorly drained Chowan, Kenner, and Maurepas soils are in landscape positions similar to those of the Brickyard soils. Kenner and Maurepas soils are composed of organic material. Kenner soils have strata of silty clay. The very poorly drained Bohicket and Tisonia soils are in the slightly lower landscape positions in tidal marshes. They have a high content of sulfur. Bohicket soils are fine textured. Tisonia soils have an organic surface layer and a fine textured substratum. The poorly drained Meggett and Wehadkee soils are in the higher landscape positions along the river banks and natural river bars. The very poorly drained Rutlege and poorly drained Plummer and Scranton soils are on terraces above the flood plains. Rutlege and Scranton soils are sandy throughout. Plummer soils have an argillic horizon below a depth of 40 inches.

Typical pedon of Brickyard silty clay, in an area of Chowan, Brickyard, and Kenner soils, frequently flooded, on the flood plain along the Apalachicola River; 20 feet west of Little Brothers Slough near its upper end on Forbes Island, 200 feet west and 1,800 feet north of the southeast corner of sec. 15, T. 7 S., R. 8 W.

A—0 to 4 inches; dark grayish brown (2.5Y 4/2) silty clay; common medium prominent strong brown (7.5YR 5/6 and 4/6) mottles; moderate fine granular structure; very friable; sticky, plastic; common mica flakes; slightly acid; clear smooth boundary.

Bg—4 to 28 inches; grayish brown (2.5Y 5/2) silty clay; common medium prominent yellowish brown (10YR 5/6) mottles; weak fine subangular blocky structure; very friable; sticky, plastic; common mica flakes; slightly acid; clear smooth boundary.

Cg1—28 to 45 inches; grayish brown (2.5Y 5/2) silty clay loam; massive; sticky, plastic; common mica flakes; neutral; gradual smooth boundary.

Cg2—45 to 80 inches; dark gray (5Y 4/1) silty clay; massive; sticky, plastic; 5 to 15 percent partially decomposed woody and fibrous debris and few mica flakes; mildly alkaline.

The thickness of the solum ranges from 8 to 48 inches. The 10- to 40-inch control section contains 35 to 60 percent clay. The A and B horizons range from medium acid to neutral, and the C horizon ranges from slightly acid to moderately alkaline. The soils commonly have few to many mica flakes.

The A horizon has hue of 2.5Y to 7.5YR, value of 3 to 5, and chroma of 2 or 3. It is silty clay loam, clay loam, silty clay, clay, or the mucky analogs of these textures. In most pedons it is mottled in shades of brown. The thickness of this horizon varies from 2 to 18 inches, but it is less than 6 inches where value is 3.

The B horizon has hue of 2.5Y to 7.5YR, value of 4 to 6, and chroma of 1 to 3. It is silty clay, silty clay loam, clay loam, or clay. It is mottled in shades of brown. Where this horizon has colors with chroma higher than 2, it extends to a depth of less than 20 inches. Some pedons do not have a B horizon.

The C horizon has hue of 10YR to 5GY or is neutral in hue. It has value of 3 to 7 and chroma of 0 to 2. It is silty clay, silty clay loam, clay, clay loam, or the mucky analogs of these textures. In some pedons it has thin strata of organic material below a depth of 40 inches and strata of sand and clay below a depth of 60 inches.

Chaires Series

The Chaires series consists of poorly drained, moderately slowly permeable, nearly level soils that formed in sandy and loamy marine sediments. These soils are in nearly level flatwoods and on breaks along drainageways. A seasonal high water table is within a depth of 6 to 12 inches for 1 to 3 months and is within a depth of 10 to 40 inches for more than 6 months in most years. Slopes range from 0 to 2 percent. The soils are sandy, siliceous, thermic Alfic Haplaquods.

Chaires soils are closely associated with Leon, Meadowbrook, Ridgewood, Scranton, and Tooles soils. The poorly drained Leon and Scranton soils are in landscape positions similar to those of the Chaires soils. Leon soils do not have an argillic horizon. Scranton soils do not have a spodic or an argillic horizon. The poorly drained and very poorly drained Meadowbrook and Tooles soils are in the slightly lower landscape positions. They do not have a spodic horizon. Tooles soils have soft limestone bedrock at a depth of 40 to 60 inches. The somewhat poorly drained Ridgewood soils are in the higher landscape positions. They do not have an argillic or a spodic horizon.

Typical pedon of Chaires sand, in a slash pine

plantation; 0.5 mile east of U.S. Highway 319 and 1.5 miles south of the Ochlockonee River, 1,300 feet south and 2,100 feet east of the northwest corner of sec. 13, T. 6 S., R. 3 W.

Ap—0 to 6 inches; dark gray (10YR 4/1) sand; weak fine granular structure; very friable; common fine and medium and few coarse roots; very strongly acid; clear wavy boundary.

E—6 to 14 inches; light brownish gray (10YR 6/2) sand; single grained; loose; common fine and medium and few coarse roots; very strongly acid; abrupt wavy boundary.

Bh1—14 to 19 inches; very dark brown (10YR 2/2) sand; moderate medium subangular blocky structure; firm; few fine and medium roots; extremely acid; clear irregular boundary.

Bh2—19 to 24 inches; dark brown (7.5YR 3/2) sand; moderate fine subangular blocky structure; friable; few fine and medium roots; very strongly acid; clear wavy boundary.

E′—24 to 33 inches; light brownish gray (10YR 6/2) sand; many medium and coarse prominent yellowish red (5YR 4/6) and strong brown (7.5YR 5/8) mottles; single grained; loose; few fine and medium roots; very strongly acid; abrupt wavy boundary.

Btg1—33 to 40 inches; gray (5Y 6/1) sandy loam; many medium and coarse prominent dark yellowish brown (10YR 4/6) and yellowish brown (10YR 5/8) mottles; moderate medium subangular blocky structure; firm; few fine and medium roots; medium acid; gradual wavy boundary.

Btg2—40 to 56 inches; gray (5Y 5/1 and 6/1) sandy clay loam; many coarse prominent brownish yellow (10YR 6/8) and dark yellowish brown (10YR 4/6) mottles; moderate medium subangular blocky structure; firm; few fine roots; mildly alkaline; clear wavy boundary.

Btg3—56 to 80 inches; greenish gray (5GY 6/1 and 5BG 5/1) and bluish gray (5B 5/1) sandy clay loam that has lenses of sandy loam; many medium prominent olive yellow (2.5Y 6/6) and many fine prominent yellowish brown (10YR 5/8) mottles; moderate fine subangular blocky structure; friable; few fine roots; moderately alkaline.

The thickness of the solum is 80 inches or more. Reaction ranges from extremely acid to strongly acid in the A, E, and Bh horizons; from strongly acid to neutral in the E′ horizon; and from medium acid to moderately alkaline in the Btg horizon. The combined thickness of the A and E horizons is less than 30 inches. Depth to the Btg horizon ranges from 32 to 80 inches.

The Ap or A horizon has hue of 10YR, value of 2 to 4, and chroma of 1 or 2. It is sand or fine sand. It is 4 to 9 inches thick.

The E horizon has hue of 10YR, value of 5 to 7, and chroma of 1 or 2. It is sand or fine sand. In some pedons the sand grains have organic stains.

The Bh horizon has hue of 10YR, value of 2 to 4, and chroma of 2 or 3 or has hue of 7.5YR, value of 3, and chroma of 2. It is sand or fine sand.

The E′ horizon has hue of 10YR, value of 5 to 7, and chroma of 1 to 3. It is sand or fine sand.

The upper part of the Btg horizon has hue of 2.5Y or 5Y, value of 5 or 6, and chroma of 1 or 2. It is sandy loam, sandy clay loam, or fine sandy loam. The lower part has hue of 5Y to 5B, value of 5 or 6, and chroma of 1 or 2. In many pedons it has mixed matrix colors.

Chowan Series

The Chowan series consists of very poorly drained, moderately slowly permeable, nearly level soils that formed in loamy and organic alluvium. These soils are on the flood plains along the Apalachicola River and its distributaries. They are frequently flooded. A seasonal high water table is at or above the surface for 6 months or more in most years. Slopes are generally less than 1 percent. The soils are fine-silty, mixed, nonacid, thermic Thapto-Histic Fluvaquents.

Chowan soils are closely associated with Bohicket, Brickyard, Kenner, Maurepas, Meggett, Plummer, Rutlege, Scranton, Tisonia, and Wehadkee soils. The very poorly drained Brickyard, Kenner, and Maurepas soils are in landscape positions similar to those of the Chowan soils. Brickyard soils do not have organic strata in the upper 40 inches. Maurepas soils are organic to a depth of 51 inches or more. Kenner soils are organic and have strata of silty clay. The very poorly drained Bohicket and Tisonia soils are in the slightly lower landscape positions in tidal marshes. They have a high content of sulfur. Bohicket soils are fine textured. Tisonia soils have an organic surface layer and a fine textured substratum. The poorly drained Meggett and Wehadkee soils are in the higher landscape positions along the river banks. They do not have organic strata. The very poorly drained Rutlege and poorly drained Plummer and Scranton soils are on flats, in depressions, and in small drainageways outside the flood plains. Scranton and Rutlege soils do not have an argillic horizon. Plummer soils have an argillic horizon below a depth of 40 inches.

Typical pedon of Chowan silty clay loam, in an area of Chowan, Brickyard, and Kenner soils, frequently flooded, on the flood plain along the Apalachicola River; 250 feet east of the East River, 2,400 feet south and

2,000 feet east of the northwest corner of sec. 36, T. 7 S., R. 8 W.

A—0 to 5 inches; dark grayish brown (10YR 4/2) silty clay loam; weak fine granular structure; sticky; very strongly acid; gradual wavy boundary.
Cg1—5 to 18 inches; grayish brown (2.5Y 5/2) silt loam; few fine distinct very dark gray (10YR 3/1) streaks; massive; slightly sticky; very strongly acid; gradual wavy boundary.
Cg2—18 to 37 inches; black (5Y 2.5/1) silty clay loam; massive; sticky; slightly acid; clear smooth boundary.
2Oa—37 to 80 inches; very dark grayish brown (10YR 3/2) sapric material containing some logs and woody material; massive; medium acid.

The surface mineral horizon ranges from 20 to 40 inches in thickness. The underlying organic horizon ranges from 16 to more than 60 inches in thickness. Reaction ranges from very strongly acid to neutral throughout the profile.

The A horizon has hue of 10YR to 5Y, value of 3 to 5, and chroma of 1 or 2. It is silt loam, silty clay loam, loam, mucky silt loam, or mucky silty clay loam.

Some pedons have a 2Cg horizon below the 2Oa horizon. The Cg and 2Cg horizons have hue of 10YR to 5Y, value of 2 to 5, and chroma of 1 or 2. They are silt loam, silty clay loam, mucky silt loam, or mucky silty clay loam.

The 2Oa horizon has hue of 7.5YR to 2.5Y, value of 2 or 3, and chroma of 1 to 3. It is sapric material that is more than 16 inches thick. Logs and other woody material are common throughout this horizon in most pedons.

Corolla Series

The Corolla series consists of somewhat poorly drained, very rapidly permeable, gently undulating soils that formed in sandy marine or eolian deposits. They are on coastal dunes, in swales, and on flats. A seasonal high water table is at a depth of 18 to 36 inches for 2 to 6 months. Slopes range from 0 to 5 percent. The soils are thermic, uncoated Aquic Quartzipsamments.

Corolla soils are closely associated with Beaches and with Duckston, Hurricane, Mandarin, and Newhan soils. The somewhat poorly drained Hurricane and Mandarin soils are in landscape positions similar to those of the Corolla soils. They have a spodic horizon. The poorly drained Duckston soils and Beaches are in the lower landscape positions. Beaches do not have diagnostic soil horizons. They are subject to frequent tidal flooding. The excessively drained Newhan soils are in the higher landscape positions.

Typical pedon of Corolla sand, 0 to 5 percent slopes (fig. 8), in an area that supports natural vegetation; about 200 feet north of the Gulf of Mexico near Southwest Cape, 1,900 feet east and 3,710 feet south of the northwest corner of sec. 5, T. 7 S., R. 1 W.

A—0 to 6 inches; light gray (10YR 7/1) sand; single grained; loose; medium acid; clear wavy boundary.
C1—6 to 24 inches; very pale brown (10YR 7/3) sand; single grained; loose; medium acid; gradual wavy boundary.
C2—24 to 32 inches; light gray (10YR 7/1) sand; few medium distinct yellow (10YR 7/8) and dark gray (10YR 4/1) mottles; single grained; loose; medium acid; abrupt smooth boundary.
Ab—32 to 34 inches; grayish brown (10YR 5/2) sand; common medium faint dark gray (10YR 4/1) mottles; single grained; loose; strongly acid; clear wavy boundary.
Cg—34 to 80 inches; light gray (10YR 7/1) sand; few medium distinct yellow (10YR 7/8) and few fine distinct brownish yellow (10YR 6/8) mottles; single grained; loose; neutral.

Reaction is slightly acid or medium acid in the A horizon. It ranges from moderately alkaline to slightly acid in the C horizon. The combined thickness of the A and C horizons is more than 72 inches.

The A horizon has hue of 10YR, value of 3 to 7, and chroma of 1 to 3. The upper part of the C horizon has hue of 10YR, value of 6 or 7, and chroma of 2 or 3. The Ab horizon, if it occurs, is at a depth of 24 to 72 inches and has colors similar to those of the A horizon. The lower part of the C horizon has hue of 10YR to 5Y, value of 5 to 8, and chroma of 1 or 2. Mottles in shades of yellow, brown, and gray are within a depth of 15 to 40 inches.

Dirego Series

The Dirego series consists of very poorly drained, rapidly permeable, nearly level soils that formed in highly decomposed plant remains over sandy marine and alluvial sediments. These soils are in gulf coast and estuarine tidal marshes. They are flooded daily by normal high tides. Slopes are less than 1 percent. The soils are sandy or sandy-skeletal, siliceous, euic, thermic Terric Sulfihemists.

Dirego soils are closely associated with Bayvi, Bohicket, Rutlege, Scranton, and Tisonia soils. The very poorly drained Bayvi, Bohicket, and Tisonia soils are in landscape positions similar to those of the Dirego soils. Bohicket soils are fine textured throughout. Tisonia soils

are fine textured in the substratum. Bayvi and Bohicket soils do not have an organic surface layer. The very poorly drained Rutlege and poorly drained Scranton soils are in the higher landscape positions outside the tidal marsh. Rutlege and Scranton soils are sandy throughout and do not have an organic surface layer.

Typical pedon of Dirego muck, in an area of Dirego and Bayvi soils, tidal, in a tidal marsh; 600 feet northwest of the edge of a tidal marsh, 4,500 feet west and 2,300 feet south of the northeast corner of sec. 5, T. 7 S., R. 1 W.

Oa—0 to 35 inches; very dark grayish brown (10YR 3/2) muck; about 35 percent fiber unrubbed, less than 5 percent rubbed; massive; sticky; 1.4 percent sulfur; neutral; abrupt smooth boundary.

2Cg1—35 to 47 inches; very dark brown (10YR 2/2) mucky sand; massive; slightly sticky; neutral; gradual wavy boundary.

2Cg2—47 to 72 inches; very dark grayish brown (10YR 3/2) sand; single grained; loose; slightly acid.

The Oa horizon has hue of 5Y to 10YR, value of 2 or 3, and chroma of 1 or 2. The content of sulfur ranges from 0.75 to 5.5 percent. Reaction is neutral or slightly acid.

The 2C horizon has hue of 7.5YR to 2.5Y, value of 2 to 6, and chroma of 1 to 3. Reaction ranges from medium acid to mildly alkaline. The horizon is fine sand, sand, mucky fine sand, or mucky sand.

Dorovan Series

The Dorovan series consists of very poorly drained, moderately permeable, nearly level soils that formed in well decomposed plant materials. These soils are in drainageways and depressions. The water table is at or near the surface for long periods during the year, and ponding is common. Slopes are less than 2 percent. The soils are dysic, thermic Typic Medisaprists.

Dorovan soils are closely associated with Pamlico, Pickney, Plummer, Rutlege, and Scranton soils. The very poorly drained Pamlico soils are in landscape positions similar to those of the Dorovan soils. They have a histic epipedon 16 to 50 inches thick underlain by sandy material. The very poorly drained Pickney, Rutlege, and Scranton soils are in the slightly higher landscape positions surrounding the depressions and drainageways. They are sandy throughout. The poorly drained Plummer and Scranton soils are in the higher landscape positions. Plummer soils are sandy and have an argillic horizon below a depth of 40 inches. Scranton soils are sandy throughout.

Typical pedon of Dorovan muck, in an area of Dorovan-Pamlico complex, depressional; 100 feet east and 2,640 feet south of the northwest corner of sec. 24, T. 6 S., R. 6 W.

Oa1—0 to 5 inches; black (10YR 2/1) muck; weak fine granular structure; plastic; very strongly acid; abrupt wavy boundary.

Oa2—5 to 68 inches; black (10YR 2/1) muck; massive; plastic; very strongly acid; gradual wavy boundary.

Oa3—68 to 80 inches; very dark gray (10YR 3/1) muck; massive; plastic; very strongly acid.

The organic material is 51 to more than 80 inches thick. Reaction is extremely acid or very strongly acid in the O horizon. It is very strongly acid in the C horizon, if the horizon occurs.

The Oa horizon has hue of 7.5YR or 10YR, value of 2 or 3, and chroma of 1 or 2. It contains 10 to 30 percent fiber unrubbed and less than 5 percent rubbed. A few large fragments of wood are in some pedons.

Some pedons have an Oe horizon. This horizon has hue of 7.5YR or 10YR, value of 2 or 3, and chroma of 2. It contains 40 to 60 percent fiber unrubbed and 20 to 40 percent rubbed.

The 2Cg horizon, if it occurs, has hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 1 or 2. It ranges from sand to sandy clay loam.

Duckston Series

The Duckston series consists of poorly drained, very rapidly permeable, nearly level soils that formed in recent sandy marine deposits. These soils are on level flats adjacent to coastal dunes and marshes or in low swales between dunes. A high water table is within a depth of 12 inches throughout most years. The depth to the water table fluctuates with the tides. Slopes range from 0 to 2 percent. The soils are siliceous, thermic Typic Psammaquents.

Duckston soils are closely associated with Bayvi, Bohicket, Corolla, and Rutlege soils. The very poorly drained Bayvi, Bohicket, and Rutlege soils are in the lower landscape positions. Bayvi and Rutlege soils have a dark surface layer more than 10 inches thick. Bohicket soils are silty and clayey throughout. The somewhat poorly drained Corolla soils are in the higher landscape positions.

Typical pedon of Duckston sand, occasionally flooded, in a wooded area near Yent Bayou; 80 feet south of U.S. Highway 98, about 2,300 feet east and 1,600 feet north of the southwest corner of sec. 8, T. 8 S., R. 5 W.

A—0 to 4 inches; dark gray (10YR 4/1) sand; weak fine granular structure; very friable; very strongly acid; clear wavy boundary.

Cg1—4 to 9 inches; grayish brown (10YR 5/2) sand; single grained; loose; very strongly acid; gradual wavy boundary.
Cg2—9 to 28 inches; light brownish gray (10YR 6/2) sand; single grained; loose; very strongly acid; clear wavy boundary.
Cg3—28 to 53 inches; white (10YR 8/1) sand; single grained; loose; medium acid; clear wavy boundary.
Cg4—53 to 80 inches; light gray (10YR 7/2) sand; common medium distinct brown (10YR 5/3) and pale brown (10YR 6/3) mottles; single grained; loose; mildly alkaline.

Reaction ranges from very strongly acid to moderately alkaline throughout the profile. The texture is sand or fine sand. Some pedons contain shell fragments.

The A horizon has hue of 10YR or is neutral in hue. It has value of 3 to 8 and chroma of 0 to 2. It is 1 to 6 inches thick.

The Cg horizon has hue of 10YR or 2.5Y or is neutral in hue. It has value of 5 to 8 and chroma of 0 to 2. It is 74 to 80 inches thick. In some pedons it has mottles in shades of red, yellow, brown, or gray.

The Ab horizon, if it occurs, has hue of 10YR or is neutral in hue. It has value of 3 to 5 and chroma of 0 to 2.

Harbeson Series

The Harbeson series consists of very poorly drained, moderately permeable, nearly level soils that formed in sandy and loamy marine sediments. These soils are in poorly defined drainageways, on flood plains, and in depressions. A seasonal high water table is at or above the surface for 4 months or more and is within a depth of 20 inches for the rest of the year. Slopes range from 0 to 2 percent. The soils are loamy, siliceous, thermic Grossarenic Umbraqualfs.

Harbeson soils are closely associated with Bonsai, Meadowbrook, Pickney, Pamlico, and Scranton soils. The very poorly drained Bonsai, Pickney, and Pamlico soils are in landscape positions similar to those of the Harbeson soils. Pickney and Bonsai soils do not have an argillic horizon. Pamlico soils are organic. The poorly drained Scranton and Meadowbrook soils are in the higher landscape positions. They do not have a thick, dark surface layer. Also, Scranton soils do not have an argillic horizon.

Typical pedon of Harbeson mucky loamy sand, depressional, in Tates Hell Swamp; 700 feet west and 400 feet south of the northeast corner of sec. 28, T. 7 S., R. 5 W.

A1—0 to 11 inches; very dark brown (10YR 2/2) mucky loamy sand; moderate medium subangular blocky structure; very friable; very strongly acid; clear wavy boundary.
A2—11 to 39 inches; dark brown (7.5YR 3/2) mucky sand; weak fine granular structure; very friable; very strongly acid; clear wavy boundary.
E1—39 to 48 inches; dark grayish brown (10YR 4/2) sand; single grained; loose; strongly acid; gradual wavy boundary.
E2—48 to 66 inches; grayish brown (10YR 5/2) sand; single grained; loose; medium acid; clear wavy boundary.
Btg1—66 to 75 inches; greenish gray (5GY 5/1) sandy loam; weak medium and fine subangular blocky structure; friable; few pockets and bands of gray loamy sand and sand; slightly acid; clear wavy boundary.
Btg2—75 to 80 inches; dark greenish gray (5GY 4/1) sandy clay loam; moderate medium subangular blocky structure; friable; few pockets and bands of gray loamy sand; neutral.

Reaction ranges from very strongly acid to medium acid in the A horizon, from strongly acid to mildly alkaline in the E horizon, and from medium acid to moderately alkaline in the Btg horizon. Depth to the Btg horizon is more than 40 inches.

The A horizon has hue of 7.5YR or 10YR, value of 2 or 3, and chroma of 2 or less. It is loamy sand, sand, fine sand, loamy fine sand, or the mucky analogs of these textures. It is 18 to 60 inches thick.

The E horizon has hue of 7.5YR to 5GY, value of 4 to 6, and chroma of 2 or less. It is loamy sand, fine sand, or sand. It ranges from 0 to 42 inches in thickness.

The Btg horizon has hue of 10YR to 5BG, value of 4 to 6, and chroma of 2 or less. It has gray mottles in some pedons. It is sandy loam, fine sandy loam, or sandy clay loam and is 6 to 53 inches thick.

Some pedons have a Cg horizon at a depth of more than 72 inches. This horizon has colors similar to those of the Btg horizon. It is loamy sand or sand. Reaction is slightly acid to moderately alkaline. In some pedons this horizon contains fragments of shells or soft limestone.

Hurricane Series

The Hurricane series consists of somewhat poorly drained, rapidly permeable, nearly level or gently sloping soils that formed in sandy marine sediments. These soils are on the lower slopes of coastal ridges and on small to medium-sized knolls or rises in the flatwoods. A seasonal high water table is at a depth of 24 to 42 inches for 3 to 6 months in most years and is

at a depth of 6 to 24 inches for short periods. Slopes range from 0 to 3 percent. The soils are sandy, siliceous, thermic Grossarenic Entic Haplohumods.

Hurricane soils are closely associated with Corolla, Leon, Mandarin, and Ridgewood soils. The somewhat poorly drained Corolla, Mandarin, and Ridgewood soils are in landscape positions similar to those of the Hurricane soils. Corolla and Ridgewood soils do not have a spodic horizon. Mandarin soils have a spodic horizon at a depth of 10 to 30 inches. The poorly drained Leon soils are in the lower landscape positions. They have a spodic horizon at a depth of 10 to 30 inches.

Typical pedon of Hurricane sand, 50 feet south of the Ochlockonee River in a stand of planted slash pine; 350 feet south and 2,540 feet east of the northwest corner of sec. 10, T. 6 S., R. 3 W.

Ap—0 to 3 inches; gray (10YR 5/1) sand; weak fine granular structure; very friable; strongly acid; abrupt wavy boundary.

A—3 to 7 inches; brown (10YR 5/3) sand; single grained; loose; strongly acid; clear wavy boundary.

E1—7 to 24 inches; brownish yellow (10YR 6/8) sand; single grained; loose; very strongly acid; clear wavy boundary.

E2—24 to 34 inches; light yellowish brown (10YR 6/4) sand; few fine distinct reddish yellow (7.5YR 6/8) mottles below a depth of 30 inches; single grained; loose; very strongly acid; clear wavy boundary.

E3—34 to 55 inches; white (10YR 8/2) sand; many medium and coarse prominent reddish yellow (7.5YR 6/6 and 10YR 6/8) and yellowish red (5YR 5/8) mottles; single grained; loose; very strongly acid; abrupt wavy boundary.

Bh1—55 to 68 inches; brown (7.5YR 5/2) sand; single grained; loose; very strongly acid; clear wavy boundary.

Bh2—68 to 76 inches; dark brown (7.5YR 4/2) sand; weak medium subangular blocky structure; very friable; very strongly acid; clear irregular boundary.

BC—76 to 80 inches; pinkish gray (7.5YR 6/2 and 7/2) sand; many fine and medium prominent reddish yellow (10YR 6/6 and 6/8) and strong brown (10YR 5/8) mottles; single grained; loose; very strongly acid.

Reaction generally ranges from medium acid to very strongly acid throughout the profile. In some pedons, however, reaction is slightly acid in the A and E horizons. The texture is generally sand or fine sand throughout the profile, but some pedons have strata of loamy sand in or above the upper part of the Bh horizon.

The A horizon has hue of 10YR, value of 3 to 5, and chroma of 1 to 3. It is 3 to 9 inches thick.

The E horizon has hue of 10YR, value of 4 to 8, and chroma of 1 to 6. It is 45 to 66 inches thick.

The Bh horizon has hue of 10YR or 7.5YR, value of 2 to 5, and chroma of 4 or less.

Some pedons have a BC horizon. It has hue of 10YR or 7.5YR, value of 6 to 8, and chroma of 2. Some pedons have a weak, discontinuous Bw horizon directly below the A horizon or below a thin E horizon.

Kenner Series

The Kenner series consists of very poorly drained, slowly permeable, nearly level soils that formed in decomposed plant material and silty and clayey alluvium. These soils are on the forested flood plain along the Apalachicola River. A seasonal high water table is at or above the surface for as much as 6 months in most years. The soils are frequently flooded. Slopes are generally less than 1 percent. The soils are euic, thermic Fluvaquentic Medisaprists.

Kenner soils are closely associated with Brickyard, Bohicket, Chowan, Maurepas, Meggett, Plummer, Rutlege, Scranton, Tisonia, and Wehadkee soils. The very poorly drained Bohicket and Tisonia soils are in the slightly lower landscape positions in tidal marshes. They have a high content of sulfur. Bohicket soils are clayey throughout. Tisonia soils have organic material over clay. The very poorly drained Brickyard, Chowan, and Maurepas soils are in landscape positions similar to those of the Kenner soils. Brickyard and Chowan soils are mineral soils that contain less organic material than the Kenner soils or do not have an organic layer. Maurepas soils do not have mineral strata to a depth of 51 inches or more. The poorly drained Meggett and Wehadkee soils are in the higher landscape positions along river banks and natural river bars. They do not have organic strata. The poorly drained Plummer and Scranton and very poorly drained Rutlege soils are in the higher landscape positions above the flood plain. They are mineral soils.

Typical pedon of Kenner muck, in an area of Chowan, Brickyard, and Kenner soils, frequently flooded; 2,650 feet east and 2,600 feet north of the southwest corner of sec. 6, T. 8 S., R. 7. W.

Oe—0 to 12 inches; dark brown (7.5YR 3/2) muck; about 40 percent fiber unrubbed, 5 to 10 percent rubbed; weak fine granular structure; very friable; slightly acid; clear smooth boundary.

Cg—12 to 23 inches; dark gray (10YR 4/1) silty clay loam; massive; flows easily between fingers when squeezed; neutral; abrupt wavy boundary.

Oa—23 to 70 inches; very dark grayish brown

(10YR 3/2) muck; massive; neutral; gradual wavy boundary.

C′g—70 to 80 inches; very dark gray (10YR 3/1) mucky silty clay; massive; flows easily between fingers when squeezed; neutral.

The depth to mineral strata ranges from 12 to 24 inches.

The surface layer is an Oa or Oe horizon that contains 10 to 50 percent fiber unrubbed and 5 to 20 percent rubbed. It is dark brown (7.5YR 3/2), very dark grayish brown (10YR 5/2), or very dark gray (10YR 3/1). It is slightly acid or neutral.

The Cg horizon is dark gray (10YR 4/1 or 5Y 4/1), very dark gray (10YR 3/1 or 5Y 3/1), dark greenish gray (5GY 4/1), or greenish gray (5GY 5/1). It is silty clay or silty clay loam. Reaction is slightly acid or neutral.

The subsurface organic horizon is very dark grayish brown (10YR 3/2), dark brown (7.5YR 3/2), or black (10YR 2/1). The content of fiber ranges from 1 to 8 percent rubbed. Reaction is slightly acid or neutral.

The C′g horizon is very dark gray (10YR 3/1 or 5Y 3/1), dark gray (10YR 4/1 or 5Y 4/1), or black (10YR 2/1, 5Y 2.5/1, or 5Y 2.5/2). It is mucky silty clay, mucky silty clay loam, silty clay, or silty clay loam.

Kershaw Series

The Kershaw series consists of excessively drained, very rapidly permeable, gently sloping to strongly sloping soils that formed primarily in sandy eolian deposits. These soils are on high inland sand ridges. The water table is below a depth of 80 inches. Slopes range from 2 to 12 percent. The soils are thermic, uncoated Typic Quartzipsamments.

Kershaw soils are closely associated with Kureb, Ortega, and Ridgewood soils. The excessively drained Kureb soils are in landscape positions similar to those of the Kershaw soils. They have spodic fragments. The moderately well drained Ortega soils are in the lower landscape positions. The somewhat poorly drained Ridgewood soils are in landscape positions lower than those of the Kershaw and Ortega soils.

Typical pedon of Kershaw sand, 5 to 12 percent slopes (fig. 9), in an area that supports natural vegetation; 1,740 feet south and 1,320 feet east of the northwest corner of sec. 25, T. 6 S., R. 2 W.

A—0 to 5 inches; gray (10YR 5/1) sand; single grained; loose; strongly acid; clear smooth boundary.

C1—5 to 58 inches; light yellowish brown (10YR 6/4) fine sand; single grained; loose; very strongly acid; clear wavy boundary.

C2—58 to 80 inches; very pale brown (10YR 8/3) fine sand; few fine faint white (10YR 8/1) patches of clean sand grains; single grained; loose; very strongly acid.

Reaction ranges from medium acid to very strongly acid throughout the profile. The texture is sand or fine sand. White, yellow, and very pale brown mottles are below a depth of 60 inches in some pedons, but they are not indicative of wetness.

The A horizon has hue of 10YR, value of 3 to 6, and chroma of 1 to 3. The C horizon has hue of 10YR, value of 5 to 8, and chroma of 3 to 8.

Kureb Series

The Kureb series consists of excessively drained, very rapidly permeable, gently rolling soils that formed primarily in sandy eolian deposits. These soils are on high coastal dunes and inland ridges. The water table is below a depth of 80 inches. Slopes range from 3 to 8 percent. The soils are thermic, uncoated Spodic Quartzipsamments.

Kureb soils are closely associated with Corolla, Hurricane, Kershaw, Mandarin, Ortega, and Resota soils. The excessively drained Kershaw soils are in landscape positions similar to those of the Kureb soils. They do not have a B horizon. The moderately well drained Ortega and Resota soils are in the lower landscape positions. Ortega soils do not have a spodic horizon. The somewhat poorly drained Corolla, Hurricane, and Mandarin soils are in the lower landscape positions. Hurricane soils have a weak spodic horizon below a depth of 50 inches. Mandarin soils have a spodic horizon that is darker than that of the Kureb soils. Corolla soils do not have a B horizon.

Typical pedon of Kureb fine sand, 3 to 8 percent slopes (fig. 10), in an area that supports natural vegetation; near U.S. Highway 98 in Carrabelle, 500 feet west and 600 feet south of the northeast corner of sec. 29, T. 7 S., R. 4 W.

A—0 to 4 inches; gray (10YR 6/1) fine sand; single grained; loose; very strongly acid; clear smooth boundary.

E1—4 to 10 inches; light gray (10YR 7/1) fine sand; single grained; loose; strongly acid; gradual wavy boundary.

E2—10 to 26 inches; white (10YR 8/1) fine sand; single grained; loose; slightly acid; abrupt irregular boundary.

C/Bh1—26 to 49 inches; yellow (10YR 7/6) fine sand (C); few tongues of white (10YR 8/1) fine sand; discontinuous dark brown (7.5YR 4/4) bands and fragments of fine sand (Bh) at the upper boundary of the horizon and along tongues of E material;

single grained; loose; strongly acid; gradual irregular boundary.

C/Bh2—49 to 80 inches; very pale brown (10YR 7/4) fine sand (C); dark yellowish brown (10YR 4/4 and 3/4) bands and fragments of fine sand (Bh); single grained; loose; strongly acid.

Reaction ranges from slightly acid to very strongly acid throughout the profile. The fine sand is more than 80 inches thick.

The A horizon has hue of 10YR, value of 6 to 8, and chroma of 1 or 2. The E horizon has hue of 10YR, value of 7 or 8, and chroma of 1 or 2.

The C part of the C/Bh horizon has hue of 10YR, value of 6 or 7, and chroma of 6 to 8. The Bh part has hue of 7.5YR, value of 3 to 5, and chroma of 2 to 4.

Some pedons have a separate C horizon. This horizon has hue of 10YR, value of 7 or 8, and chroma of 3 or 4.

Leefield Series

The Leefield series consists of somewhat poorly drained, moderately permeable, nearly level soils that formed in sandy and loamy marine sediments. These soils are on low ridges in the flatwoods, along stream banks, and on low flats in the uplands. A seasonal high water table is at a depth of 18 to 30 inches for about 4 months during the year and is perched above the argillic horizon after periods of heavy rainfall. Slopes range from 0 to 3 percent. The soils are loamy, siliceous, thermic Arenic Plinthaquic Paleudults.

Leefield soils are closely associated with Albany, Blanton, Lynchburg, Pelham, Plummer, Ridgewood, Sapelo, and Stilson soils. The somewhat poorly drained Albany, Lynchburg, and Ridgewood soils are in landscape positions similar to those of the Leefield soils. They contain less than 5 percent plinthite. Albany soils have an argillic horizon at a depth of more than 40 inches. Lynchburg soils have an argillic horizon at a depth of 20 to 40 inches. Ridgewood soils are sandy throughout. The poorly drained Pelham, Plummer, and Sapelo soils are in the lower landscape positions. They contain less than 5 percent plinthite. Plummer and Sapelo soils have an argillic horizon at a depth of more than 40 inches. Sapelo soils have a spodic horizon. The moderately well drained Blanton and Stilson soils are in the higher landscape positions. Blanton soils contain less than 5 percent plinthite and have an argillic horizon at a depth of more than 40 inches.

Typical pedon of Leefield sand, in a wooded area; 300 feet west and 400 feet south of the northeast corner of sec. 1, T. 6 S., R. 8 W.

Ap—0 to 7 inches; gray (10YR 5/1) sand; weak fine granular structure; very friable; very strongly acid; clear wavy boundary.

AE—7 to 11 inches; pale brown (10YR 6/3) sand; weak fine granular structure; very friable; very strongly acid; clear wavy boundary.

E—11 to 25 inches; very pale brown (10YR 7/3) sand; common medium distinct white (10YR 8/2) and brownish yellow (10YR 6/6 and 6/8) mottles; single grained; loose; strongly acid; clear wavy boundary.

EB—25 to 31 inches; light yellowish brown (10YR 6/4) sand; common medium distinct light gray (10YR 7/2) and brownish yellow (10YR 6/8) mottles; weak fine subangular blocky structure; friable; about 2 percent ironstone nodules; strongly acid; clear wavy boundary.

Btv—31 to 50 inches; yellowish brown (10YR 5/6) fine sandy loam; few medium distinct light gray (10YR 7/2) and strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; friable; about 5 to 6 percent plinthite and 5 to 10 percent ironstone nodules; very strongly acid; clear wavy boundary.

Btg—50 to 80 inches; gray (10YR 6/1) sandy clay loam; many medium prominent strong brown (7.5YR 5/6 and 5/8), olive brown (2.5Y 4/8), light olive brown (2.5Y 5/8), and brownish yellow (10YR 6/8) mottles; moderate medium subangular blocky structure; friable; less than 2 percent plinthite; very strongly acid.

The thickness of the solum is 80 inches or more. The depth to a horizon that contains 5 to 15 percent plinthite ranges from 30 to 50 inches. Reaction is strongly acid or very strongly acid throughout the profile.

The A horizon has hue of 10YR, value of 3 to 5, and chroma of 1 or 2. The A and E horizons are fine sand, sand, or loamy sand. The E horizon has hue of 10YR, value of 5 to 7, and chroma of 3 to 6. It has few or common gray, white, yellow, and brown mottles.

The EB or BE horizon, if it occurs, has hue of 10YR, value of 6 or 7, and chroma of 3 to 8. It has few or common gray, yellow, and brown mottles throughout. It is loamy sand or loamy fine sand and contains 0 to 5 percent plinthite.

The Bt horizon, if it occurs, and the Btv horizon have hue of 10YR, value of 5 to 7, and chroma of 3 to 8. In some pedons they are reticulately mottled in the lower part. The Bt horizon contains 2 to 5 percent plinthite, and the Btv horizon contains 5 to 15 percent. Many pedons have a Btg or Btgv horizon, which has hue of 10YR or 2.5Y, value of 6 or 7, and chroma of 1 or 2. The Btg horizon contains less than 2 percent plinthite, and the Btgv horizon contains 5 to 10 percent plinthite. The Bt, Btv, and Btg horizons are sandy loam, fine

Figure 7.—A profile of Blanton fine sand, 0 to 5 percent slopes. The argillic horizon at a depth of about 1.5 meters (60 inches) holds sufficient moisture for use by deep-rooted plants. Depth is marked in meters.

Figure 8.—A profile of Corolla sand, 0 to 5 percent slopes. Note the windblown deposit of white sand over the thin buried A horizon. Also note the gray C horizon.

Figure 9.—A profile of Kershaw sand, 5 to 12 percent slopes. Kershaw soils are deep. They are sandy throughout and show little profile development, except for a thin A horizon.

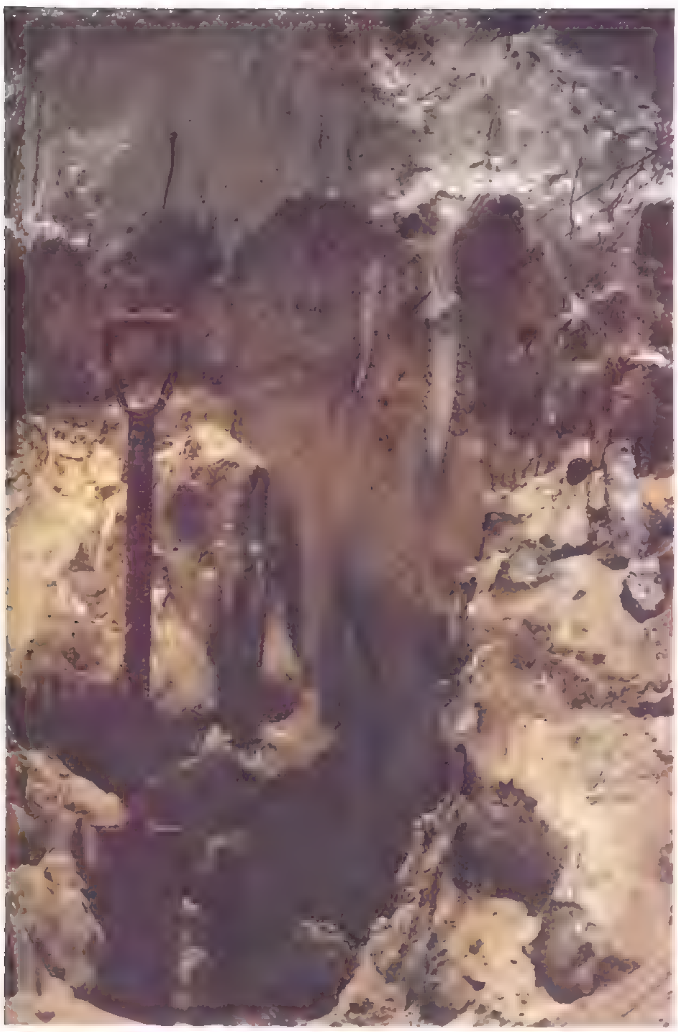

Figure 10. A profile of Kureb fine sand, 3 to 8 percent slopes. Note the abrupt boundary of the white E horizon tonguing into the yellowish B horizon.

Figure 11. A profile of Ortega fine sand, 0 to 5 percent slopes. A seasonal high water table between depths of 42 and 60 inches is indicated by the light colored, mottled area below the shovel blade.

Figure 12.—A profile of Stilson fine sand. Note the well developed gray, red, and brown mottles in the lower part of the argillic horizon. Depth is marked in meters.

Figure 13.—A profile of Tooles sand. Note the areas where the gray subsoil material tongues into the soft, white limestone bedrock. Depth is marked in meters.

sandy loam, or sandy clay loam. They are mottled in shades of brown, yellow, red, and gray.

Leon Series

The Leon series consists of poorly drained, moderately permeable or moderately rapidly permeable, nearly level soils that formed in sandy marine sediments. These soils are on broad flats in the flatwoods and on knolls or low ridges in the titi bogs. A seasonal high water table is at a depth of 6 to 12 inches for 1 to 4 months during periods of high rainfall but recedes to a depth of more than 40 inches during very dry periods. Slopes range from 0 to 2 percent. The soils are sandy, siliceous, thermic Aeric Haplaquods.

Leon soils are closely associated with Lynn Haven, Mandarin, Sapelo, and Scranton soils. The poorly drained Sapelo and Scranton soils are in landscape positions similar to those of the Leon soils. Sapelo soils have an argillic horizon. Scranton soils do not have a spodic horizon. The somewhat poorly drained Mandarin soils are in the higher landscape positions. The poorly drained Lynn Haven soils are in the slightly lower landscape positions. They have an A horizon that is thicker than that of the Leon soils.

Typical pedon of Leon sand; 4,000 feet east of U.S. Highway 319 and 2.5 miles south of the Ochlockonee River, 300 feet north and 1,750 feet east of the southwest corner of sec. 13, T. 6 S., R. 2 W.

Ap—0 to 8 inches; dark gray (10YR 4/1) rubbed sand; weak fine granular structure; very friable; many fine, medium, and coarse roots; very strongly acid; clear wavy boundary.

E—8 to 22 inches; white (10YR 8/2) sand; single grained; loose; many fine, medium, and coarse roots; very strongly acid; abrupt wavy boundary.

Bh1—22 to 40 inches; very dark brown (10YR 2/2) sand; moderate medium subangular blocky structure; friable; many fine, medium, and coarse roots; very strongly acid; gradual wavy boundary.

Bh2—40 to 72 inches; very dark brown (10YR 2/2) and dark brown (10YR 3/3) sand; fine and moderate medium subangular blocky structure; friable; strongly acid; clear wavy boundary.

C—72 to 80 inches; light brownish gray (10YR 6/2) and dark grayish brown (10YR 4/2) fine sand; single grained; loose; strongly acid.

Reaction is very strongly acid or strongly acid throughout the profile. The texture is sand or fine sand to a depth of 80 inches or more.

The A or Ap horizon has hue of 10YR, value of 3 or 4, and chroma of 2 or less. Unrubbed, it has a salt-and-pepper appearance. It is 4 to 8 inches thick.

The E horizon has hue of 10YR, value of 6 to 8, and chroma of 1 or 2. It is 5 to 20 inches thick.

The Bh horizon has hue of 10YR, value of 2 or 3, and chroma of 1 to 3; hue of 7.5YR, value of 3, and chroma of 2; or hue of 5YR and value and chroma of 3. It is 4 to 50 inches thick.

Some pedons have an E′ and a B′h horizon below the Bh horizon. The colors of these horizons are similar to those of the E and Bh horizons.

The C horizon has hue of 10YR, value of 4 to 7, and chroma of 2 or 3.

Lynchburg Series

The Lynchburg series consists of somewhat poorly drained, moderately permeable, nearly level soils that formed in loamy marine sediments. These soils are on low ridges adjacent to small streams in the uplands. A seasonal high water table is at a depth of 12 to 30 inches for at least 4 months in most years. Slopes range from 0 to 2 percent. The soils are fine-loamy, siliceous, thermic Aeric Paleaquults.

Lynchburg soils are closely associated with Leefield, Pelham, Plummer, and Surrency soils. The somewhat poorly drained Leefield soils are in landscape positions similar to those of the Lynchburg soils. They have a sandy epipedon more than 20 inches thick and have a horizon that contains more than 5 percent plinthite at a depth of 30 to 60 inches. The poorly drained Pelham and Plummer and very poorly drained Surrency soils are in the lower landscape positions. They have a sandy epipedon that is more than 20 inches thick.

Typical pedon of Lynchburg loamy fine sand, in Apalachicola National Forest; 200 feet east and 50 feet south of the center of sec. 24, R. 8 W., T. 6 S.

Ap—0 to 6 inches; dark gray (10YR 4/1) loamy fine sand; moderate fine granular structure; very friable; very strongly acid; abrupt wavy boundary.

E—6 to 13 inches; pale brown (10YR 6/3) loamy fine sand; single grained; loose; very strongly acid; clear wavy boundary.

Bt1—13 to 18 inches; light yellowish brown (10YR 6/4) sandy clay loam; few fine distinct light brownish gray (10YR 6/2) and reddish yellow (5YR 6/8) mottles; moderate medium subangular blocky structure; friable; very strongly acid; abrupt wavy boundary.

Bt2—18 to 28 inches; light yellowish brown (2.5Y 6/4) sandy clay loam; common fine distinct reddish yellow (7.5YR 6/8), brownish yellow (10YR 6/6), and light brownish gray (2.5Y 6/2) mottles; moderate medium subangular blocky structure; firm; very strongly acid; clear wavy boundary.

Btg1—28 to 50 inches; grayish brown (2.5Y 5/2) sandy

clay loam; many medium and fine prominent reddish yellow (7.5YR 6/8), yellowish red (5YR 4/6), and brownish yellow (10YR 6/6 and 6/8) mottles; moderate medium subangular blocky structure; firm; very strongly acid; clear wavy boundary.

Btg2—50 to 69 inches; olive gray (5Y 5/1) sandy clay loam; many medium and coarse prominent light gray (5Y 7/1), olive yellow (2.5Y 6/8), yellowish brown (10YR 5/6), strong brown (7.5YR 5/8), yellowish red (5YR 5/8), and red (2.5YR 4/8) mottles; moderate medium subangular blocky structure; firm; very strongly acid; clear wavy boundary.

Btg3—69 to 80 inches; light gray (5Y 5/1) clay loam; common fine and medium prominent red (2.5YR 5/8) and yellowish red (5YR 5/8) mottles; moderate fine and medium subangular blocky structure; firm; very strongly acid.

The thickness of the solum is more than 60 inches. Reaction is very strongly acid or strongly acid throughout the profile.

The A or Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 1 or 2. It is loamy fine sand, fine sandy loam, or sandy loam.

The E horizon, if it occurs, has hue of 10YR, value of 6, and chroma of 2 or 3. It is loamy fine sand, fine sandy loam, or sandy loam.

The Bt horizon has hue of 10YR, value of 5 or 6, and chroma of 4 to 8 or hue of 2.5Y, value of 5 or 6, and chroma of 4 to 6. It contains few to many mottles in shades of brown, yellow, and gray. The Btg horizon has hue of 10YR to 5Y, value of 5 to 7, and chroma of 1 or 2. The Bt and Btg horizons are sandy clay loam or clay loam.

Lynn Haven Series

The Lynn Haven series consists of poorly drained, moderately permeable or moderately rapidly permeable, nearly level soils that formed in sandy marine deposits. These soils are in broad, very slightly depressional areas in the flatwoods. A seasonal high water table is at a depth of 0 to 12 inches for 4 to 6 months in most years and is within a depth of 30 inches for the rest of the year. Slopes range from 0 to 2 percent. The soils are sandy, siliceous, thermic Typic Haplaquods.

Lynn Haven soils are closely associated with Leon, Rutlege, and Scranton soils. The poorly drained Leon and Scranton soils are in the slightly higher landscape positions in the flatwoods. Leon soils do not have a thick, dark surface layer. Scranton soils do not have a spodic horizon. The very poorly drained Rutlege soils are in depressions. They do not have a spodic horizon.

Typical pedon of Lynn Haven sand, in a slash pine plantation near Lanark Village; 1,200 feet east and 1,100 feet south of the northwest corner of sec. 6, T. 7 S., R. 3 W.

Ap—0 to 8 inches; black (10YR 2/1) sand; weak medium granular structure; very friable; very strongly acid; clear smooth boundary.

A—8 to 22 inches; very dark gray (10YR 3/1) sand; weak fine granular structure; very friable; very strongly acid; clear wavy boundary.

E—22 to 28 inches; gray (10YR 5/1) sand; single grained; loose; very strongly acid; clear wavy boundary.

Bh1—28 to 41 inches; very dark brown (10YR 2/2) sand; weak medium subangular blocky structure; friable; very strongly acid; gradual wavy boundary.

Bh2—41 to 50 inches; dark brown (7.5YR 3/2) sand; weak fine subangular blocky structure; friable; very strongly acid; clear wavy boundary.

E′—50 to 64 inches; brown (10YR 5/3) sand; single grained; loose; very strongly acid; clear wavy boundary.

B′h—64 to 80 inches; very dark grayish brown (10YR 3/2) sand; weak fine subangular blocky structure; friable; extremely acid.

Reaction is extremely acid to strongly acid throughout the profile. The texture is sand or fine sand to a depth of 80 inches or more.

The A or Ap horizon has hue of 10YR, value of 2 or 3, and chroma of 1. Unrubbed, it has a salt-and-pepper appearance. The E and E′ horizons, if they occur, have hue of 10YR, value of 4 or 5, and chroma of 1 to 3. The combined thickness of the A and E horizons is 15 to 30 inches.

The Bh and B′h horizons, if they occur, have hue of 10YR or 7.5YR, value of 2 or 3, and chroma of 1 or 2. The Bh horizon is 10 to 50 inches thick.

Some pedons have a C/B horizon. The colors in this horizon are similar to those in the C and Bh horizons.

The C horizon, if it occurs, has hue of 10YR, value of 4 to 7, and chroma of 1 to 3.

Mandarin Series

The Mandarin series consists of somewhat poorly drained, moderately permeable, nearly level soils that formed in sandy marine and eolian sediments. These soils are on low coastal ridges and low knolls in the flatwoods. A seasonal high water table is at a depth of 18 to 36 inches for 3 to 6 months in most years. Slopes range from 0 to 3 percent. The soils are sandy, siliceous, thermic Typic Haplohumods.

Mandarin soils are closely associated with Hurricane, Leon, Lynn Haven, Resota, Ridgewood, and Rutlege

soils. The somewhat poorly drained Hurricane and Ridgewood soils are in landscape positions similar to those of the Mandarin soils. Ridgewood soils do not have a spodic horizon. Hurricane soils have a spodic horizon at a depth of more than 50 inches. The moderately well drained Resota soils are in the higher landscape positions. They have a Bh horizon that is thinner than that of the Mandarin soils. The poorly drained Leon and Lynn Haven soils are in the lower landscape positions. Lynn Haven soils have an A horizon that is thicker than that of the Mandarin soils. The very poorly drained Rutlege soils are in the very low landscape positions. They have a thick, dark surface layer.

Typical pedon of Mandarin fine sand; 1.25 miles northeast of the intersection of U.S. Highway 98 and State Highway 65 on the north side of a borrow area, 1,600 feet east and 1,400 feet south of the northwest corner of sec. 23, T. 8 S., R. 6 W.

Ap—0 to 4 inches; gray (10YR 5/1) fine sand; weak fine granular structure; very friable; very strongly acid; abrupt wavy boundary.

E—4 to 25 inches; light gray (10YR 7/1) fine sand; single grained; loose; strongly acid; abrupt irregular boundary.

Bh1—25 to 30 inches; dark reddish brown (5YR 2.5/2) fine sand; moderate medium subangular blocky structure; firm; very strongly acid; gradual wavy boundary.

Bh2—30 to 34 inches; dark brown (7.5YR 3/4) fine sand; weak fine subangular blocky structure; friable; very strongly acid; clear wavy boundary.

BC—34 to 61 inches; brown (10YR 5/3) fine sand; common fine prominent reddish yellow (7.5YR 6/6) mottles; single grained; loose; strongly acid; clear wavy boundary.

C—61 to 80 inches; white (10YR 8/2) fine sand; common fine prominent light yellowish brown (10YR 6/4) and brownish yellow (10YR 6/6) mottles; single grained; loose; strongly acid.

Reaction ranges from extremely acid to medium acid in the A, E, and Bh horizons and from very strongly acid to neutral in the BC, BE, E′, C, and B′h horizons. The texture is sand or fine sand throughout the profile.

The A horizon has hue of 10YR, value of 3 to 6, and chroma of 1. The E horizon has hue of 10YR, value of 6 to 8, and chroma of 1 to 3.

The Bh horizon has hue of 5YR to 10YR and value and chroma of 2 to 4. It is weakly cemented and well coated with organic matter.

The BC horizon or the BE horizon, if it occurs, has hue of 10YR, value of 4 to 6, and chroma of 3 or 4 or hue of 7.5YR, value of 5 or 6, and chroma of 4.

The C horizon or the E′ horizon, if it occurs, has hue of 10YR, value of 5 to 8, and chroma of 1 to 3.

Maurepas Series

The Maurepas series consists of very poorly drained, rapidly permeable, nearly level soils that formed in decaying plant remains over marine and fluvial sands and clays. These soils are in river and bay swamps and marshes. A high water table ranges from 12 inches above the surface to 6 inches below throughout the year. Slopes are less than 1 percent. The soils are euic, thermic Typic Medisaprists.

Maurepas soils are closely associated with Dirego, Dorovan, and Pamlico soils. These very poorly drained associated soils are in landscape positions similar to those of the Maurepas soils. Dirego soils contain more than 0.75 percent sulfur within a depth of 40 inches and are susceptible to extreme acidification when drained. Dorovan soils have a pH of less than 4.5 throughout. Dirego and Pamlico soils have a mineral substratum within a depth of 51 inches.

Typical pedon of Maurepas muck, frequently flooded, in a brackish Ochlockonee Bay marsh; 300 feet southwest of the northeast corner of sec. 7, T. 6 S., R. 2 W.

Oe—0 to 6 inches; dark brown (7.5YR 3/2) hemic material; less than 40 percent fiber rubbed; massive; neutral; clear wavy boundary.

Oa—6 to 80 inches; very dark grayish brown (10YR 3/2) sapric material; less than 10 percent fiber rubbed; massive; moderately alkaline.

The thickness of the organic material is more than 51 inches. Reaction ranges from medium acid to moderately alkaline throughout the profile.

The Oe horizon has hue of 5YR to 10YR, value of 2 or 3, and chroma of 2. It ranges from 4 to 12 inches in thickness.

The Oa horizon has hue of 7.5YR to 10YR, value of 2 or 3, and chroma of 2 or less. It ranges from 40 to 68 inches in thickness.

The 2C horizon, if it occurs, has hue of 10YR to 5Y, value of 3 or 4, and chroma of 1 or 2. It is mucky sand, loamy sand, sandy loam, or semifluid clay.

Meadowbrook Series

The Meadowbrook series consists of poorly drained or very poorly drained, moderately slowly permeable, nearly level soils that formed in loamy marine sediments. These soils are in the flatwoods, in sloughs and depressions, and on flood plains. A seasonal high water table is within a depth of 12 inches for 3 to 6

months in most years. The water table is above the surface in the sloughs and depressions. Slopes range from 0 to 2 percent. The soils are loamy, siliceous, thermic Grossarenic Ochraqualfs.

Meadowbrook soils are closely associated with Chaires, Harbeson, Scranton, and Tooles soils. The poorly drained Chaires, Scranton, and Tooles soils are in landscape positions similar to those of the Meadowbrook soils. Chaires soils have a spodic horizon. Scranton soils do not have an argillic horizon. Tooles soils have soft limestone bedrock at a depth of 40 to 60 inches. The very poorly drained Harbeson soils are in depressions. They have a thick, dark surface layer.

Typical pedon of Meadowbrook sand, in the flatwoods northeast of Tates Hell Swamp; 25 feet northwest of the southeast corner of sec. 7, T. 6 S., R. 5 W.

A—0 to 4 inches; dark grayish brown (10YR 4/2) sand; weak fine granular structure; strongly acid; clear wavy boundary.

E1—4 to 39 inches; mixed light brownish gray (10YR 6/2) and dark grayish brown (10YR 4/2) sand; single grained; loose; strongly acid; clear wavy boundary.

E2—39 to 48 inches; light gray (10YR 7/2) sand; single grained; loose; strongly acid; abrupt wavy boundary.

Btg1—48 to 64 inches; gray (5Y 5/1) sandy loam; moderate medium subangular blocky structure; friable; medium acid; clear wavy boundary.

Btg2—64 to 80 inches; light greenish gray (5GY 7/1) sandy clay loam; moderate medium subangular blocky structure; friable; slightly acid.

The thickness of the solum is 72 inches or more. The texture is fine sand or sand in the A and E horizons and sandy loam or sandy clay loam in the Btg horizon.

The A horizon has hue of 10YR, value of 2 to 4, and chroma of 1 or 2. It is 3 to 6 inches thick. Reaction ranges from very strongly acid to slightly acid.

The E horizon has hue of 10YR to 2.5Y, value of 4 to 7, and chroma of 1 or 2. It is 40 to 65 inches thick. Reaction ranges from strongly acid to slightly acid.

The Btg horizon has hue of 10YR to 5G, value of 4 to 7, and chroma of 1 or 2. It is 8 to 32 inches thick. Reaction ranges from medium acid to moderately alkaline.

Some pedons have a Cr horizon of soft limestone bedrock below a depth of 72 inches.

Meggett Series

The Meggett series consists of poorly drained, slowly permeable, nearly level soils that formed in clayey and loamy alluvium. These soils are on flood plains. They are frequently flooded. Slopes range from 0 to 2 percent. A seasonal high water table is within a depth of 12 inches for about 3 months or more in most years. The soils are fine, mixed, thermic Typic Albaqualfs.

Meggett soils are closely associated with Brickyard, Chowan, Harbeson, Kenner, Meadowbrook, Tooles, and Wehadkee soils. The poorly drained Meadowbrook, Tooles, and Wehadkee soils are in landscape positions similar to those of the Meggett soils. They have a B horizon that has a coarser texture than that of the Meggett soils. Tooles soils have a loamy subsoil at a depth of 20 to 40 inches and soft limestone bedrock at a depth of 40 to 60 inches. Meadowbrook soils are sandy to a depth of 40 to 72 inches. The very poorly drained Brickyard, Chowan, Harbeson, and Kenner soils are in the lower landscape positions. Brickyard soils have montmorillonitic mineralogy. Chowan soils have layers of muck. Kenner soils are organic and have mineral strata. Harbeson soils have a thick, black, sandy surface layer and have a loamy subsoil below a depth of 40 inches.

Typical pedon of Meggett loam, in an area of Wehadkee-Meggett complex, frequently flooded; on a natural levee along the Apalachicola River, about 0.5 mile south of Bloody Bluff Landing, 1,700 feet south and 2,000 feet west of the northeast corner of sec. 14, T. 7 S., R. 8 W.

A—0 to 4 inches; dark grayish brown (10YR 4/2) loam; weak medium platy structure; friable; slightly acid; abrupt wavy boundary.

E1—4 to 10 inches; light gray (10YR 7/1) loamy fine sand; many medium prominent yellowish brown (10YR 5/6) mottles; weak fine granular structure; friable; slightly acid; clear wavy boundary.

E2—10 to 18 inches; gray (10YR 6/1) loamy sand; single grained; loose; slightly acid; abrupt wavy boundary.

Btg1—18 to 30 inches; gray (5YR 5/1) sandy clay; common fine prominent yellowish red (5Y 4/6 and 5/6) mottles; moderate medium subangular blocky structure; firm; mildly alkaline; gradual wavy boundary.

Btg2—30 to 80 inches; gray (5Y 5/1) sandy clay; few fine distinct dark grayish brown (5Y 4/2) mottles; weak medium subangular blocky structure; firm; mildly alkaline.

Reaction ranges from strongly acid to slightly acid in the A and E horizons and from slightly acid to moderately alkaline in the B and C horizons. The thickness of the solum is 40 to 80 inches.

The A horizon has hue of 10YR, value of 2 to 5, and chroma of 1 or 2. It is loam or loamy fine sand.

The E horizon has hue of 10YR to 5Y, value of 4 to 6, and chroma of 1 or 2. It is loam or loamy fine sand.

The Btg horizon has hue of 10YR to 5Y, value of 4 to 6, and chroma of 1 or 2. It is sandy clay, clay, or clay loam.

The C horizon, if it occurs, has colors and textures similar to those of the Btg horizon.

Newhan Series

The Newhan series consists of excessively drained, very rapidly permeable, gently undulating to steep soils that formed in recent sandy eolian deposits. These soils are on coastal dunes. The water table is below a depth of 72 inches. Slopes range from 2 to 30 percent. The soils are thermic, uncoated Typic Quartzipsamments.

Newhan soils are closely associated with Corolla and Duckston soils. The somewhat poorly drained to moderately well drained Corolla soils are in the lower landscape positions. They have a seasonal high water table at a depth of 18 to 36 inches. The poorly drained Duckston soils are in landscape positions that are lower than those of the Corolla soils. They have a water table within a depth of 12 inches throughout most years.

Typical pedon of Newhan sand, in an area of Newhan-Corolla complex, rolling; on a sparsely vegetated dune on St. George Island, along the north side of State Road 300; lat. 29 deg. 40 min. 30 sec. north and long. 84 deg. 50 min. 45 sec. west:

A—0 to 1 inch; gray (10YR 6/1) sand; single grained; loose; mildly alkaline; clear smooth boundary.

C1—1 to 6 inches; light gray (10YR 7/1) sand; single grained; loose; mildly alkaline; clear wavy boundary.

C2—6 to 11 inches; white (10YR 8/2) sand; single grained; loose; mildly alkaline; gradual smooth boundary.

C3—11 to 21 inches; mixed light gray (10YR 7/2) and light brownish gray (10YR 7/2) sand; single grained; loose; neutral; gradual smooth boundary.

C4—21 to 80 inches; light gray (10YR 7/2) sand; single grained; loose; neutral.

Reaction is neutral or mildly alkaline throughout the profile. The texture is sand or fine sand. The content of shell fragments ranges from 8 to 15 percent in many pedons.

The A horizon has hue of 10YR, value of 5 or 6, and chroma of 1 or 2. It ranges from 0 to 3 inches in thickness.

The C horizon has hue of 10YR, value of 6 to 8, and chroma of 1 or 2. It is more than 77 inches thick.

The Ab horizon, if it occurs, has colors similar to those of the A horizon.

Ortega Series

The Ortega series consists of moderately well drained, very rapidly permeable, nearly level or gently sloping soils that formed in sandy marine or eolian sediments. These soils are on broad, nearly level or gently sloping uplands and sloping side slopes. The water table is at a depth of 42 to 60 inches for 1 to 3 months in most years and is at a depth of 60 to 72 inches for as much as 6 months. Slopes range from 0 to 5 percent. The soils are thermic, uncoated Typic Quartzipsamments.

Ortega soils are closely associated with Blanton, Kershaw, and Ridgewood soils. The moderately well drained Blanton soils are in landscape positions similar to those of the Ortega soils. They have an argillic horizon. The excessively drained Kershaw soils are in the higher landscape positions. The somewhat poorly drained Ridgewood soils are in the lower landscape positions.

Typical pedon of Ortega fine sand, 0 to 5 percent slopes (fig. 11); approximately 1 mile west of U.S. Highway 98, about 0.5 mile south of Ochlockonee Bay, 100 feet east and 1,800 feet north of the southwest corner of sec. 13, T. 6 S., R. 2 W.

Ap—0 to 5 inches; grayish brown (10YR 5/2) fine sand; single grained; loose; strongly acid; clear wavy boundary.

C1—5 to 43 inches; brownish yellow fine (10YR 6/6) sand; single grained; loose; very strongly acid; gradual wavy boundary.

C2—43 to 63 inches; very pale brown (10YR 7/4) fine sand; common medium distinct light gray (10YR 7/2), brownish yellow (10YR 6/8), and strong brown (7.5YR 5/8) mottles; single grained; loose; very strongly acid; gradual wavy boundary.

Cg—63 to 80 inches; light gray (10YR 7/2) fine sand; common medium distinct strong brown (7.5YR 5/8) and reddish yellow (5YR 6/8) mottles; single grained; loose; very strongly acid.

Reaction is strongly acid in the A horizon and ranges from very strongly acid to medium acid in the C horizon. The texture is sand or fine sand to a depth of 80 inches or more.

The A or Ap horizon has hue of 10YR, value of 5, and chroma of 2. It ranges from 5 to 7 inches in thickness.

The C horizon has hue of 10YR, value of 5 to 7, and chroma of 3 to 6. The Cg horizon has hue of 10YR, value of 6 or 7, and chroma of 2. Common light gray, brownish yellow, or reddish yellow mottles are at a depth of 43 to 70 inches.

Pamlico Series

The Pamlico series consists of very poorly drained, moderately permeable, nearly level soils that formed in decaying plant remains. These soils are in freshwater swamps, on flood plains, and in depressions. A seasonal high water table is at or above the surface for 3 to 5 months during most years. Slopes are 0 to 1 percent. The soils are sandy or sandy-skeletal, siliceous, dysic, thermic Terric Medisaprists.

Pamlico soils are closely associated with Dorovan, Lynn Haven, Maurepas, Pickney, Rutlege, and Scranton soils. The very poorly drained Dorovan and Maurepas soils are in landscape positions similar to those of the Pamlico soils. They have muck that is more than 51 inches thick. The very poorly drained Pickney, Rutlege, and Scranton soils are in the slightly higher landscape positions. They are mineral soils. The poorly drained Lynn Haven and Scranton soils are in the higher landscape positions. They do not have organic layers. Lynn Haven soils have a spodic horizon within a depth of 30 inches.

Typical pedon of Pamlico muck, in an area of Dorovan-Pamlico complex, depressional, in a freshwater swamp; 400 feet east and 600 feet north of the southwest corner of sec. 18, T. 7 S., R. 5 W.

Oa1—0 to 7 inches; very dark brown (10YR 2/2) muck; 30 to 40 percent partially decomposed fiber unrubbed, 10 to 15 percent rubbed; weak fine and medium granular structure; slightly sticky; extremely acid; clear wavy boundary.

Oa2—7 to 38 inches; dark brown (7.5YR 3/2) muck; 15 to 20 percent fiber unrubbed, less than 5 percent fiber rubbed; massive; slightly sticky; extremely acid; clear wavy boundary.

Cg1—38 to 66 inches; dark grayish brown (10YR 4/2) fine sand; single grained; nonsticky; extremely acid; clear wavy boundary.

Cg2—66 to 80 inches; grayish brown (2.5Y 5/2) fine sand; single grained; nonsticky; very strongly acid.

Reaction is very strongly acid or extremely acid throughout the profile.

The Oa horizon has hue of 10YR or 7.5YR, value of 2 or 3, and chroma of 1 or 2. It is muck. It is 16 to 50 inches thick. Some pedons have a surface horizon that has more than 20 percent fiber, rubbed. This horizon ranges from 0 to 5 inches in thickness.

The Cg horizon has hue of 10YR or 2.5Y, value of 2 to 5, and chroma of 1 or 2. It is sand, fine sand, or loamy sand. It is 30 to 67 inches thick.

Pelham Series

The Pelham series consists of poorly drained, moderately rapidly permeable, nearly level soils that formed in sandy and loamy marine sediments. These soils are on low ridges in the flatwoods and on low, broad flats. A seasonal high water table is at a depth of 0 to 18 inches for 3 to 6 months in most years. Slopes range from 0 to 2 percent. The soils are loamy, siliceous, thermic Arenic Paleaquults.

Pelham soils are closely associated with Leefield, Plummer, Sapelo, and Surrency soils. The poorly drained Sapelo and Plummer soils are in landscape positions similar to those of the Pelham soils. Sapelo soils have a spodic horizon. Plummer soils have an argillic horizon below a depth of 40 inches. The very poorly drained Surrency soils are in depressions. They have a dark surface layer that is more than 10 inches thick. The somewhat poorly drained Leefield soils are in the higher landscape positions. They have an argillic horizon that contains more than 5 percent plinthite.

Typical pedon of Pelham fine sand, in a stand of planted slash pine; 2,100 feet west and 200 feet north of the southeast corner of sec. 2, T. 7 S., R. 8 W.

Ap—0 to 6 inches; very dark gray (10YR 3/1) fine sand; weak medium granular structure; very friable; very strongly acid; clear wavy boundary.

E1—6 to 18 inches; dark grayish brown (10YR 4/2) fine sand; common fine distinct light yellowish brown (10YR 6/4) mottles; single grained; loose; very strongly acid; clear wavy boundary.

E2—18 to 37 inches; light gray (10YR 7/2) fine sand; common fine and medium prominent light yellowish brown (10YR 6/4) and brownish yellow (10YR 6/8) mottles; single grained; loose; very strongly acid; abrupt wavy boundary.

Btg1—37 to 46 inches; light gray (10YR 7/2) fine sandy loam; many medium and coarse prominent brownish yellow (10YR 6/6) and reddish yellow (10YR 6/8) mottles; weak medium subangular blocky structure; friable; very strongly acid; clear wavy boundary.

Btg2—46 to 62 inches; light gray (10YR 7/1) sandy clay loam; many medium and coarse prominent brownish yellow (10YR 6/6) and strong brown (7.5YR 4/8 and 4/6) mottles; moderate medium subangular blocky structure; firm; very strongly acid; abrupt irregular boundary.

Btg3—62 to 80 inches; light gray (N 2/0) sandy clay loam; many medium and coarse prominent yellow (10YR 7/6), strong brown (7.5YR 5/8), and yellowish red (5YR 5/8) mottles; moderate medium subangular blocky structure; firm; very strongly acid.

Reaction is strongly acid or very strongly acid throughout the profile.

The A horizon has hue of 10YR or is neutral in hue. It has value of 2 to 5 and chroma of 0 to 3. It is sand or fine sand. It is 2 to 8 inches thick. The E horizon has hue of 10YR, value of 4 to 7, and chroma of 1 or 2. It is sand or fine sand. It is 18 to 32 inches thick.

The Btg horizon has hue of 10YR to 2.5Y or is neutral in hue. It has value of 4 to 7 and chroma of 0 to 2. It is fine sandy loam, sandy loam, or sandy clay loam. It has common or many mottles in shades of red, gray, yellow, and brown.

Pickney Series

The Pickney series consists of very poorly drained, rapidly permeable, nearly level soils that formed in sandy marine sediments. These soils are in depressions and poorly defined drainageways and on flood plains. For long periods during the year, the water table is at or near the surface or the soils are ponded. Slopes are 0 to 1 percent. The soils are sandy, siliceous, thermic Cumulic Humaquepts.

Pickney soils are closely associated with Dorovan, Lynn Haven, Maurepas, Pamlico, Rutlege, and Scranton soils. The very poorly drained Rutlege and Scranton soils are in landscape positions similar to or slightly higher than those of the Pickney soils. They have a thinner surface horizon than that of the Pickney soils. The very poorly drained Dorovan, Maurepas, and Pamlico soils are in the lower landscape positions. They have an organic horizon more than 16 inches thick. The poorly drained Lynn Haven and Scranton soils are in the higher landscape positions. They have a thinner surface horizon than that of the Pickney soils. Lynn Haven soils have a spodic horizon within a depth of 30 inches.

Typical pedon of Pickney sand, in an area of Pickney-Pamlico complex, depressional; about 80 feet south and 360 feet west of the northeast corner of sec. 31, T. 6 S., R. 3 W.

A1—0 to 15 inches; black (10YR 2/1) sand; weak fine granular structure; very friable; common gray (10YR 6/1), clean sand grains; very strongly acid; clear wavy boundary.

A2—15 to 35 inches; black (10YR 2/1) sand; weak fine subangular blocky structure; very friable; extremely acid; gradual wavy boundary.

A3—35 to 41 inches; very dark brown (10YR 2/2) sand; single grained; loose; very strongly acid; abrupt smooth boundary.

Cg1—41 to 60 inches; grayish brown (10YR 5/2) sand; single grained; loose; very strongly acid; clear wavy boundary.

Cg2—60 to 80 inches; light brownish gray (10YR 6/2) sand; single grained; loose; very strongly acid.

Reaction ranges from extremely acid to strongly acid in the A horizon and from very strongly acid to medium acid in the C horizon.

The A horizon has hue of 10YR or 7.5YR, value of 2 or 3, and chroma of 1 or 2. It is sand or fine sand and is 24 to 60 inches thick.

The Cg horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 1 or 2. It is sand, fine sand, or loamy sand.

Plummer Series

The Plummer series consists of poorly drained, moderately rapidly permeable, nearly level soils that formed in sandy and loamy marine sediments. These soils are in low areas in the flatwoods and on broad flats. A seasonal high water table is at a depth of 0 to 12 inches for 6 months in most years. Slopes range from 0 to 2 percent. The soils are loamy, siliceous, thermic Grossarenic Paleaquults.

Plummer soils are closely associated with Leon, Pelham, Rutlege, Sapelo, Scranton, and Surrency soils. The poorly drained Leon, Pelham, Sapelo, and Scranton soils are in landscape positions similar to those of the Plummer soils. Leon and Sapelo soils have a spodic horizon. Scranton soils do not have an argillic horizon. Pelham soils have an argillic horizon at a depth of 20 to 40 inches. The very poorly drained Rutlege, Scranton, and Surrency soils are in the lower landscape positions. Surrency soils have an argillic horizon at a depth of 20 to 40 inches. Rutlege and Scranton soils do not have an argillic horizon.

Typical pedon of Plummer fine sand, in a stand of planted slash pine; 900 feet west and 1,900 feet south of the northeast corner of sec. 12, T. 7 S., R. 8 W.

Ap—0 to 7 inches; very dark gray (10YR 3/1) fine sand; weak fine granular structure; very friable; very strongly acid; clear smooth boundary.

A—7 to 12 inches; dark gray (10YR 4/1) fine sand; few fine faint and distinct grayish brown (10YR 5/2) mottles; weak fine granular structure; very friable; very strongly acid; clear wavy boundary.

E—12 to 58 inches; gray (10YR 5/1) fine sand; common fine distinct grayish brown (10YR 5/2 and 2.5Y 5/2) and brown (10YR 5/3) mottles; single grained; loose; very strongly acid; abrupt wavy boundary.

Btg1—58 to 69 inches; gray (10YR 6/1) fine sandy loam; common medium and coarse prominent brownish yellow (10YR 6/6 and 6/8), yellow (2.5Y 7/6), and strong brown (7.5YR 5/8) mottles; moderate medium subangular blocky structure;

friable; very strongly acid; clear wavy boundary.

Btg2—69 to 80 inches; light gray (10YR 7/1) sandy loam; few fine distinct yellow (10YR 7/6) mottles; weak medium subangular blocky structure; friable; very strongly acid.

Reaction is very strongly acid or strongly acid throughout the profile.

The A and E horizons are sand or fine sand. The Ap horizon has hue of 10YR, value of 3 or 4, and chroma of 1 or 2. It is 4 to 9 inches thick. The underlying A horizon is 3 to 5 inches thick. Some pedons do not have an Ap horizon. The E horizon has hue of 10YR, value of 5 to 8, and chroma of 1 or 2. It is mottled in shades of brown or yellow.

The BE horizon, if it occurs, has colors similar to those of the E horizon. It is loamy sand or loamy fine sand.

The Btg horizon has hue of 10YR, 2.5Y, or 7.5YR or is neutral in hue. It has value of 5 to 7 and chroma of 0 to 2. It is fine sandy loam, sandy loam, or sandy clay loam.

Resota Series

The Resota series consists of moderately well drained, very rapidly permeable, nearly level or gently sloping soils that formed in sandy marine deposits. These soils are on coastal ridges and remnant dunes. The water table is at a depth of 40 to 60 inches for as much as 6 months in most years and is below a depth of 60 inches during dry periods. Slopes range from 0 to 5 percent. The soils are thermic, uncoated Spodic Quartzipsamments.

Resota soils are closely associated with Corolla, Kureb, Mandarin, Newhan, and Ortega soils. The moderately well drained Ortega soils are in landscape positions similar to those of the Resota soils. They do not have a Bh horizon. The excessively drained Kureb and Newhan soils are in the higher landscape positions. Newhan soils do not have a Bh horizon. The somewhat poorly drained Corolla and Mandarin soils are in the lower landscape positions. Corolla soils do not have a B horizon. Mandarin soils have a thick, dark spodic horizon.

Typical pedon of Resota fine sand, 0 to 5 percent slopes; about 0.25 mile north of U.S. Highway 98 and about 1.25 miles east of State Highway 65, about 1,500 feet east and 1,950 feet south of the northwest corner of sec. 23, T. 8 S., R. 6 W.

Ap—0 to 3 inches; gray (10YR 5/1) fine sand; weak fine granular structure; very friable; medium acid; clear smooth boundary.

E—3 to 22 inches; white (10YR 8/1) fine sand; single grained; loose; slightly acid; abrupt irregular boundary.

Bw1—22 to 44 inches; brownish yellow (10YR 6/6) fine sand; a thin, discontinuous brown (7.5YR 5/4) Bh horizon at contact with the E horizon and in patches in the upper part of the Bw1 horizon; single grained; loose; strongly acid; gradual wavy boundary.

Bw2—44 to 58 inches; yellow (10YR 7/6) fine sand; common fine distinct reddish yellow (7.5YR 6/6) mottles; single grained; loose; strongly acid; gradual wavy boundary.

C—58 to 80 inches; very pale brown (10YR 8/3) fine sand; common fine and medium distinct reddish yellow (7.5YR 6/6) mottles; single grained; loose; strongly acid.

Reaction ranges from strongly acid to slightly acid throughout the profile. The thickness of the solum ranges from 40 to 72 inches. The texture is sand or fine sand throughout the profile.

The A horizon has hue of 10YR, value of 4 to 6, and chroma of 2 or less. Unrubbed, it has a salt-and-pepper appearance. The E horizon has hue of 10YR, value of 6 to 8, and chroma of 1 or 2.

The B horizon has hue of 10YR or 7.5YR, value of 5 to 7, and chroma of 4 to 8. The part of the B horizon below a depth of 42 inches commonly has few or common reddish or yellowish mottles.

The C horizon has hue of 10YR, value of 6 to 8, and chroma of 1 to 4. It has few or common mottles in shades of yellow, brown, or red.

Ridgewood Series

The Ridgewood series consists of somewhat poorly drained, rapidly permeable, nearly level or gently sloping soils that formed in sandy marine sediments. These soils are on low knolls in the flatwoods and on low uplands. The water table is at a depth of 24 to 42 inches for 2 to 4 months and is at a depth of 30 to 72 inches for the rest of the year. Slopes range from 0 to 5 percent. The soils are thermic, uncoated Aquic Quartzipsamments.

Ridgewood soils are closely associated with Hurricane, Kershaw, Leon, Ortega, and Scranton soils. The poorly drained Scranton and Leon soils are in the lower landscape positions. Leon soils have a spodic horizon. Scranton soils have an A horizon that is thicker than that of the Ridgewood soils. The somewhat poorly drained Hurricane soils are in landscape positions similar to those of the Ridgewood soils. They have a spodic horizon. The moderately well drained Ortega soils are in the higher landscape positions. The excessively drained Kershaw soils also are in the higher landscape positions.

Typical pedon of Ridgewood sand, 0 to 5 percent slopes; 300 feet west of U.S. Highway 319, about 1,800 feet south and 1,600 feet east of the northwest corner of sec. 26, T. 6 S., R. 3 W.

Ap—0 to 5 inches; gray (10YR 5/1) sand; weak fine granular structure; loose; medium acid; abrupt wavy boundary.
C1—5 to 21 inches; brownish yellow (10YR 6/6) sand; single grained; loose; very strongly acid; gradual wavy boundary.
C2—21 to 34 inches; brownish yellow (10YR 6/6) sand; common fine distinct light gray (10YR 7/1) and brownish yellow (10YR 6/8) mottles; single grained; loose; very strongly acid; gradual wavy boundary.
C3—34 to 64 inches; very pale brown (10YR 7/3) sand; common medium prominent strong brown (7.5YR 5/8) and brownish yellow (10YR 6/8) mottles; single grained; loose; very strongly acid; gradual wavy boundary.
C4—64 to 80 inches; light brownish gray (10YR 6/2) and brown (7.5YR 5/2) sand; single grained; loose; medium acid.

Reaction is strongly acid or medium acid in the A horizon and ranges from very strongly acid to medium acid in the C horizon. The texture is sand or fine sand to a depth of 80 inches or more.

The A or Ap horizon has hue of 10YR, value of 3 to 5, and chroma of 1 or 2. It is 4 to 6 inches thick.

The C horizon has hue of 10YR, value of 5 to 7, and chroma of 2 to 6 or hue of 7.5YR, value of 5, and chroma of 2. In some pedons the lower part of this horizon has value of 8 and chroma of 1. The horizon has common mottles in shades of gray, yellowish red, or brownish yellow at a depth of 21 to 40 inches.

Rutlege Series

The Rutlege series consists of very poorly drained, rapidly permeable, nearly level soils that formed in sandy marine sediments. These soils are in low areas adjacent to streams, in titi bays, and in depressions. For long periods during the year, the water table is at or near the surface or the soils are ponded. Slopes are less than 2 percent. The soils are sandy, siliceous, thermic Typic Humaquepts.

Rutlege soils are closely associated with Dorovan, Leon, Pamlico, Pickney, Plummer, Scranton, and Surrency soils. The very poorly drained Pickney, Scranton, and Surrency soils are in landscape positions similar to those of the Rutlege soils. Pickney soils have an A horizon that is more than 24 inches thick. Scranton soils have an A horizon that is less than 10 inches thick. Surrency soils have an argillic horizon. The very poorly drained Dorovan and Pamlico soils are in the lower landscape positions. They are organic soils. The poorly drained Leon, Plummer, and Scranton soils are in the higher landscape positions. They have a thinner A horizon than that of the Rutlege soils. Plummer soils have an argillic horizon. Leon soils have a spodic horizon.

Typical pedon of Rutlege fine sand, in a titi bay about 1 mile east of State Highway 65; 2,630 feet south and 1,900 feet east of the northwest corner of sec. 5, T. 7 S., R. 7 W.

Ap—0 to 6 inches; very dark brown (10YR 2/2) fine sand; weak fine granular structure; loose; very strongly acid; clear wavy boundary.
A—6 to 13 inches; very dark gray (10YR 3/1) fine sand; single grained; loose; strongly acid; clear wavy boundary.
Cg1—13 to 34 inches; about 75 percent grayish brown (10YR 5/2) and about 25 percent dark gray (10YR 4/1) sand; common medium prominent olive yellow (2.5Y 6/6), strong brown (7.5YR 5/6), and yellowish brown (10YR 5/6) mottles; single grained; loose; strongly acid; gradual wavy boundary.
Cg2—34 to 58 inches; dark gray (10YR 4/1) sand; common coarse distinct gray (10YR 6/1) mottles; single grained; loose; medium acid; clear wavy boundary.
Cg3—58 to 80 inches; gray (10YR 6/1) sand; single grained; loose; medium acid.

Reaction ranges from extremely acid to medium acid throughout the profile. The texture is sand or fine sand to a depth of 80 inches or more. Some pedons have a surface layer of mucky sand or mucky fine sand as much as 5 inches thick.

The A or Ap horizon has hue of 10YR, value of 2 or 3, and chroma of 1 or 2. It ranges from 12 to 24 inches in thickness.

The upper part of the C horizon has hue of 10YR, value of 4 or 5, and chroma of 1 or 2. The lower part has hue of 10YR, value of 5 or 6, and chroma of 1 or 2. If mottles occur in the C horizon, they are few or common, are fine or medium, and have hue of 7.5YR to 2.5Y, value of 5 to 8, and chroma of 1 to 6.

Sapelo Series

The Sapelo series consists of poorly drained, moderately permeable, nearly level soils that formed in sandy and loamy marine sediments. These soils are on slight ridges in the flatwoods. A seasonal high water table is at a depth of 6 to 18 inches for 2 to 4 months in most years. Slopes range from 0 to 2 percent. The soils are sandy, siliceous, thermic Ultic Haplaquods.

Sapelo soils are closely associated with Albany, Leefield, Leon, Pelham, Plummer, and Scranton soils. The poorly drained Leon soils are in landscape positions similar to those of the Sapelo soils. They do not have an argillic horizon. The poorly drained Plummer, Scranton, and Pelham soils are in the slightly lower landscape positions. Plummer and Pelham soils do not have a spodic horizon, and Scranton soils do not have a spodic or an argillic horizon. The somewhat poorly drained Albany and Leefield soils are in the higher landscape positions. They do not have a spodic horizon.

Typical pedon of Sapelo fine sand, in a slash pine plantation; 2,200 feet west and 20 feet north of the southeast corner of sec. 34, T. 5 S., R. 7 W.

Ap—0 to 8 inches; dark gray (10YR 4/1) fine sand; weak fine granular structure; very friable; very strongly acid; clear wavy boundary.

E—8 to 14 inches; light gray (10YR 6/1 and 7/1) fine sand; single grained; loose; very strongly acid; abrupt wavy boundary.

Bh—14 to 26 inches; very dark grayish brown (10YR 3/2) fine sand; moderate medium subangular blocky structure; friable; very strongly acid; clear wavy boundary.

E′—26 to 56 inches; light brownish gray (10YR 6/2) fine sand; many fine and medium prominent strong brown (7.5YR 5/8), reddish yellow (7.5YR 6/6), and light yellowish brown (10YR 6/4) mottles; single grained; loose; strongly acid; clear wavy boundary.

Btg1—56 to 62 inches; light gray (10YR 7/1) loamy fine sand; common medium prominent light yellowish brown (2.5Y 6/4) mottles; weak fine subangular blocky structure; friable; strongly acid; gradual wavy boundary.

Btg2—62 to 80 inches; gray (10YR 6/1) sandy loam; moderate medium subangular blocky structure; friable; strongly acid.

Reaction ranges from extremely acid to strongly acid throughout the profile. The solum is 70 to more than 80 inches thick. Depth to the Bh horizon ranges from 10 to 18 inches, and depth to the Bt horizon ranges from 48 to 70 inches.

The Ap or A horizon is fine sand or sand. It has hue of 10YR, value of 2 to 4, and chroma of 1 or 2. Unrubbed, it has a salt-and-pepper appearance. The thickness of this horizon ranges from 5 to 8 inches.

The E horizon has hue of 10YR, value of 5 to 7, and chroma of 1 or 2. It is sand or fine sand.

The Bh horizon has hue of 10YR or 7.5YR, value of 3 or 4, and chroma of 2 to 4. It is 5 to 12 inches thick. The BE horizon, if it occurs, has hue of 10YR or 7.5YR, value of 5, and chroma of 2 to 4. The Bh and BE horizons are sand or fine sand.

The E′ horizon has hue of 10YR, value of 6 to 8, and chroma of 1 to 3. It is sand or fine sand.

The Btg horizon has hue of 10YR to 5Y, value of 5 to 7, and chroma of 1 or 2. It is sandy loam, fine sandy loam, or sandy clay loam. It is 10 to 24 percent clay. Some pedons have subhorizons of loamy fine sand or lenses or pockets of loamy sand, sand, or loamy fine sand.

Scranton Series

The Scranton series consists of poorly drained and very poorly drained, rapidly permeable, nearly level soils that formed in sandy marine sediments. These soils are in broad areas in the flatwoods and in sloughs. The water table is at a depth of 6 to 18 inches for 3 to 8 months in most years. In the sloughs, a slowly moving layer of water covers the surface for short periods. Slopes are less than 2 percent. The soils are siliceous, thermic Humaqueptic Psammaquents.

Scranton soils are closely associated with Duckston, Leon, Meadowbrook, Plummer, Ridgewood, and Rutlege soils. The poorly drained Duckston, Leon, and Meadowbrook soils are in landscape positions similar to those of the Scranton soils. Duckston soils have a thinner A horizon than that of the Scranton soils. Leon soils have a spodic horizon. Meadowbrook soils have an argillic horizon. The poorly drained Plummer soils are in landscape positions similar to or slightly lower than those of the Scranton soils. They have an ultic argillic horizon. The very poorly drained Rutlege soils are in the lower landscape positions. They have a thicker A horizon than that of the Scranton soils. The somewhat poorly drained Ridgewood soils are in the higher landscape positions. They have a thinner A horizon than that of the Scranton soils.

Typical pedon of Scranton fine sand, in the flatwoods 1 mile west of U.S. Highway 319; 1,600 feet south and 300 feet west of the northeast corner of sec. 22, T. 6 S., R. 3 W.

A—0 to 7 inches; very dark gray (10YR 3/1) fine sand; common clean sand grains; weak fine granular structure; loose; many fine, medium, and coarse roots; very strongly acid; clear wavy boundary.

Cg1—7 to 22 inches; light gray (10YR 6/1) fine sand; patches of dark gray (10YR 4/1) and very dark gray (10YR 3/1) sand; single grained; loose; many fine, medium, and coarse roots; very strongly acid; gradual wavy boundary.

Cg2—22 to 46 inches; dark gray (10YR 4/1) fine sand; patches of light brownish gray (10YR 6/2) and gray (10YR 6/1) fine sand; single grained; loose; many

fine, medium, and coarse roots; very strongly acid; clear wavy boundary.

Cg3—46 to 80 inches; grayish brown (10YR 5/2) fine sand; patches of light gray (10YR 7/2) fine sand; single grained; loose; many fine roots; very strongly acid.

Reaction ranges from very strongly acid to medium acid throughout the profile.

The A or Ap horizon has hue of 10YR, value of 2 or 3, and chroma of 1 or 2. It ranges from 6 to 9 inches in thickness. It is sand or fine sand.

The upper part of the C horizon has hue of 10YR, value of 4 to 6, and chroma of 1 to 4. The lower part has hue of 10YR, value of 5 to 8, and chroma of 1 or 2. The C horizon is sand, fine sand, or loamy sand.

Stilson Series

The Stilson series consists of moderately well drained, moderately permeable, nearly level soils that formed in sandy and loamy marine sediments. These soils are on ridges in the uplands. A seasonal high water table is at a depth of 30 to 42 inches for 1 to 4 months. It is perched above the argillic horizon for brief periods after heavy rainfall. Slopes range from 0 to 3 percent. The soils are loamy, siliceous, thermic Arenic Plinthic Paleudults.

Stilson soils are closely associated with Albany, Blanton, Leefield, Plummer, and Sapelo soils. Albany, Blanton, Plummer, and Sapelo soils contain less than 5 percent plinthite. Also, they have a sandy epipedon that is more than 40 inches thick. The moderately well drained Blanton soils are in landscape positions similar to those of the Stilson soils. The somewhat poorly drained Albany and Leefield soils and the poorly drained Plummer and Sapelo soils are in the lower landscape positions. Sapelo soils have a spodic horizon.

Typical pedon of Stilson fine sand (fig. 12); 750 feet northwest of Fort Gadsden Creek, 1,500 feet west and 1,900 feet north of the southeast corner of sec. 30, T. 6 S., R. 7 W.

Ap—0 to 7 inches; gray (10YR 4/1) fine sand; weak fine granular structure; very friable; very strongly acid; abrupt wavy boundary.

E1—7 to 13 inches; light yellowish brown (10YR 6/4) fine sand; single grained; loose; very strongly acid; gradual wavy boundary.

E2—13 to 32 inches; very pale brown (10YR 7/4) fine sand; common fine distinct brownish yellow (10YR 6/6) mottles; single grained; loose; very strongly acid; abrupt wavy boundary.

Bt—32 to 43 inches; yellowish brown (10YR 5/6) fine sandy loam; few medium distinct very pale brown (10YR 7/4) mottles; weak medium subangular blocky structure; friable; about 1 percent plinthite; very strongly acid; clear wavy boundary.

Btv—43 to 59 inches; yellowish brown (10YR 5/6) sandy clay loam; common medium distinct very pale brown (10YR 7/3) and light brownish gray (10YR 6/2) mottles; moderate medium subangular blocky structure; friable; 5 to 8 percent plinthite; very strongly acid; clear wavy boundary.

B′t—59 to 80 inches; mottled strong brown (7.5YR 5/8), red (2.5YR 4/8), light gray (10YR 6/1 and 7/1), and brownish yellow (10YR 6/6 and 6/8) sandy clay loam; moderate medium subangular blocky structure; friable; very strongly acid.

The solum ranges from 72 to more than 80 inches in thickness. Horizons that contain 5 to 10 percent plinthite are at a depth of 35 to 50 inches. Reaction is strongly acid or very strongly acid throughout the profile.

The Ap horizon has hue of 10YR, value of 4, and chroma of 1 or 2. It is fine sand or sand.

The E horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 2 to 4. It is fine sand or sand. In some pedons it has few or common fine yellow or brown mottles in the lower part.

The Bt and Btv horizons have hue of 10YR, 7.5YR, or 2.5Y, value of 5 to 7, and chroma of 4 to 8. In some pedons, the lower part of the Bt horizon is mottled. The upper part of the Bt horizon is mottled in shades of gray or brown. The gray mottles occur at a depth of 37 to 46 inches. The Btv horizon and the lower part of the Bt horizon are mottled in shades of gray, brown, or red. The Bt horizon is sandy clay loam, sandy loam, or fine sandy loam.

Surrency Series

The Surrency series consists of very poorly drained, moderately permeable, nearly level soils that formed in sandy and loamy marine sediments. These soils are in shallow depressions in the flatwoods, in titi bays, and along small streams. A seasonal high water table is at or near the surface for long periods during the year, and shallow ponding can occur after heavy rains. Slopes are less than 1 percent. The soils are loamy, siliceous, thermic Arenic Umbric Paleaquults.

Surrency soils are closely associated with Albany, Leefield, Pelham, Plummer, and Sapelo soils. The somewhat poorly drained Albany and Leefield soils are in the higher landscape positions. Leefield soils contain more than 5 percent plinthite. The poorly drained Pelham, Plummer, and Sapelo soils are in the slightly

higher landscape positions. Sapelo soils have a spodic horizon. Albany, Plummer, and Sapelo soils have a sandy surface layer that is more than 40 inches thick.

Typical pedon of Surrency fine sand; 1,300 feet west and 200 feet north of the southeast corner of sec. 19, T. 6 S., R. 3 W.

A—0 to 12 inches; black (10YR 2/1) fine sand; moderate fine granular structure; friable; very strongly acid; clear wavy boundary.

E1—12 to 28 inches; dark grayish brown (10YR 4/2) fine sand; common medium and coarse prominent yellowish brown (10YR 5/6) and strong brown (7.5YR 5/8) mottles; single grained; loose; very strongly acid; gradual wavy boundary.

E2—28 to 34 inches; grayish brown (10YR 5/2) fine sand; few medium distinct light olive brown (2.5Y 5/4) mottles; single grained; loose; strongly acid; abrupt wavy boundary.

Btg1—34 to 58 inches; gray (10YR 5/1) sandy loam; common medium and coarse prominent brownish yellow (10YR 6/6) and yellowish brown (10YR 5/8) mottles; weak medium subangular blocky structure; firm; strongly acid; gradual wavy boundary.

Btg2—58 to 80 inches; gray (10YR 5/1) sandy clay loam; few medium distinct yellowish brown (10YR 5/4) mottles; moderate medium subangular blocky structure; firm; strongly acid.

Reaction ranges from extremely acid to strongly acid in the A horizon. It is very strongly acid or strongly acid in the lower horizons.

The A and E horizons are sand, fine sand, or loamy fine sand, and the Bt horizon is sandy loam or sandy clay loam. The average content of clay in the upper 20 inches of the Bt horizon is 10 to 18 percent.

The A horizon has hue of 10YR, value of 2 or 3, and chroma of 1 or 2. It is 10 to 20 inches thick.

The E horizon has hue of 10YR, value of 4 to 6, and chroma of 1 or 2. It is 23 to 24 inches thick. It is mottled in shades of brown and yellow.

The Btg horizon has hue of 10YR to 5Y, value of 4 to 6, and chroma of 1 or 2. It is mottled in shades of brown or yellow. The depth to this horizon ranges from 28 to 40 inches.

Tisonia Series

The Tisonia series consists of very poorly drained, very slowly permeable, nearly level soils that formed in highly decomposed plant remains over clayey marine and alluvial sediments. These soils are in estuarine and gulf coast tidal marshes. They are flooded daily by normal high tides. Slopes are less than 1 percent. The soils are clayey, montmorillonitic, euic, thermic Terric Sulfihemists.

Tisonia soils are closely associated with Bayvi, Bohicket, Brickyard, Chowan, Dirego, Kenner, Maurepas, Rutlege, and Scranton soils. The very poorly drained Bayvi, Bohicket, and Dirego soils are in landscape positions similar to those of the Tisonia soils. Bohicket soils are fine textured mineral soils. Bayvi soils are sandy mineral soils. Dirego soils have a sandy substratum. The very poorly drained Maurepas soils are in brackish and freshwater marshes. They do not have a high content of sulfur, and they have organic soil material more than 51 inches thick. The very poorly drained Brickyard, Chowan, and Kenner soils are on the forested flood plain along the Apalachicola River. They are not flooded daily by normal high tides. Brickyard soils are clayey and silty throughout. Chowan and Kenner soils are stratified with organic and mineral soil material. The very poorly drained Rutlege soils are in upland swamps that are not affected by normal high tides. The poorly drained Scranton soils are in the flatwoods. Rutlege and Scranton soils are sandy throughout.

Typical pedon of Tisonia mucky peat, in an area of Bohicket and Tisonia soils, tidal, in a small tidal marsh; 100 feet south of Miller Creek, 1,300 feet east and 1,500 feet north of the southwest corner of sec. 17, T. 8 S., R. 6 W.

Oe—0 to 4 inches; very dark grayish brown (10YR 3/2) mucky peat; about 60 percent fiber unrubbed, about 30 percent rubbed; massive; very friable; neutral; clear smooth boundary.

Oa—4 to 26 inches; very dark grayish brown (10YR 3/2) muck; less than 10 percent fiber rubbed; massive; very friable; neutral; gradual smooth boundary.

Cg1—26 to 66 inches; dark gray (5Y 4/1) clay; massive; flows easily between fingers when squeezed; neutral; abrupt smooth boundary.

Cg2—66 to 68 inches; gray (5Y 5/1) loamy sand; massive; slightly sticky; mildly alkaline; gradual smooth boundary.

Cg3—68 to 80 inches; dark gray (5Y 4/1) sandy clay loam; massive; slightly sticky; mildly alkaline.

Reaction ranges from slightly acid to mildly alkaline throughout the profile.

The Oe horizon has hue of 10YR or 7.5YR and value and chroma of 2 or 3. The Oa horizon has hue of 10YR or 5Y, value of 2 or 3, and chroma of 2.

The Cg horizon has hue of 10YR to 5Y, value of 3 to 5, and chroma of 1 or 2. It is clay to a depth of 60 inches.

Tooles Series

The Tooles series consists of poorly drained and very poorly drained, slowly permeable, nearly level soils that formed in sandy and loamy marine sediments. These soils are in nearly level areas in the flatwoods, in poorly defined drainageways, in depressions, and on flood plains. A seasonal high water table is at a depth of 6 to 12 inches or, in the depressions, is above the surface for 4 to 8 months in most years. Slopes are 0 to 1 percent. The soils are loamy, siliceous, thermic Arenic Albaqualfs.

Tooles soils are closely associated with Chaires, Harbeson, Meadowbrook, Meggett, and Scranton soils. The poorly drained Meadowbrook and Scranton soils are in landscape positions similar to those of the Tooles soils or are in sloughs. Meadowbrook soils have an argillic horizon below a depth of 40 inches. Scranton soils do not have an argillic horizon. The poorly drained Chaires soils are in the slightly higher landscape positions. They have a spodic horizon. The very poorly drained Harbeson soils are in depressions or poorly defined drainageways. They have a surface layer that is more than 10 inches thick. None of these associated soils have soft limestone bedrock within a depth of 80 inches.

Typical pedon of Tooles sand (fig. 13), in the flatwoods; about 300 feet west of the New River, 40 feet east and 1,050 feet south of the northwest corner of sec. 27, T. 6 S., R. 5 W.

Ap—0 to 3 inches; very dark grayish brown (10YR 3/2) sand; weak fine granular structure; very friable; strongly acid; clear wavy boundary.

E1—3 to 8 inches; dark grayish brown (10YR 4/2) sand; single grained; loose; strongly acid; clear wavy boundary.

E2—8 to 27 inches; light gray (10YR 6/1) sand; few medium and fine distinct yellowish brown (10YR 5/4) and grayish brown (10YR 5/2) mottles; single grained; loose; strongly acid; abrupt wavy boundary.

Btg1—27 to 42 inches; gray (5Y 5/1) sandy clay loam; many medium prominent olive yellow (2.5Y 6/6), yellowish brown (10YR 5/6), brownish yellow (10YR 6/6), and strong brown (7.5YR 5/6) mottles; moderate medium subangular blocky structure; neutral; gradual wavy boundary.

Btg2—42 to 50 inches; gray (5Y 6/1) sandy clay loam; many medium and coarse prominent olive yellow (2.5Y 6/6), yellowish brown (10YR 5/6), and light olive brown (2.5Y 5/6) mottles; weak medium subangular blocky structure; mildly alkaline; abrupt irregular boundary.

R—50 inches; limestone bedrock that contains many shell fragments.

The solum extends to the limestone bedrock and is 45 to 60 inches thick.

The A horizon has hue of 10YR, value of 3 or 4, and chroma of 1 or 2. It is fine sand, sand, loamy sand, or loamy fine sand. Reaction ranges from very strongly acid to slightly acid.

The E horizon has hue of 10YR, value of 4 to 7, and chroma of 1 to 3. In most pedons it has few or common mottles in shades of brown and gray. It is fine sand, sand, loamy sand, or loamy fine sand. Reaction ranges from strongly acid to neutral.

The Btg horizon has hue of 10YR to 5G or is neutral in hue. It has value of 4 to 7 and chroma of 0 to 2. In most pedons it has common or many mottles in shades of gray, yellow, and brown. Reaction ranges from neutral to moderately alkaline.

Wehadkee Series

The Wehadkee series consists of poorly drained, moderately permeable, nearly level soils that formed in recent sandy and loamy alluvium. These soils are on point bars and natural levees on the flood plains along the Apalachicola River and its distributaries. A seasonal high water table is within a depth of 12 inches for 3 months or more during most years. The soils are frequently flooded. Slopes range from 0 to 2 percent. The soils are fine-loamy, mixed, nonacid, thermic Typic Fluvaquents.

Wehadkee soils are closely associated with Brickyard, Chowan, Kenner, and Meggett soils. The poorly drained Meggett soils are in landscape positions similar to those of the Wehadkee soils. They have a fine textured B horizon. The very poorly drained Brickyard, Chowan, and Kenner soils are in the lower landscape positions. Brickyard soils have a fine textured B horizon. Chowan soils are loamy and have strata of muck. Kenner soils are organic and have strata of mineral soil material.

Typical pedon of Wehadkee loam, in an area of Wehadkee-Meggett complex, frequently flooded; on a low natural levee at Gardners Landing on the East River, about 75 feet north and 25 feet east of the southwest corner of sec. 31, R. 7 W., T. 7 S.

A—0 to 3 inches; brown (10YR 4/3) loam; moderate medium granular structure; friable; common flakes of mica; medium acid; clear smooth boundary.

Bg1—3 to 16 inches; gray (10YR 5/1) clay loam; common medium distinct strong brown (7.5YR 4/6) mottles; moderate medium subangular blocky

structure; friable; common flakes of mica; medium acid; abrupt smooth boundary.

Bg2—16 to 40 inches; gray (10YR 5/1) sandy loam; fine strata and clasts of sandy clay loam; many medium prominent yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; friable; few flakes of mica; medium acid; abrupt smooth boundary.

2Cg1—40 to 70 inches; light gray (10YR 7/1) sand; single grained; loose; neutral; clear smooth boundary.

2Cg2—70 to 80 inches; gray (10YR 5/1) fine sandy loam; massive; friable; neutral.

Reaction ranges from very strongly acid to neutral. The solum is 30 to 60 inches thick.

The A horizon has hue of 10YR to 2.5Y or is neutral in hue. It has value of 4 to 6 and chroma of 0 to 4. It is loam or fine sandy loam.

The B horizon has hue of 10YR to 2.5Y or is neutral in hue. It has value of 4 to 6 and chroma of 0 to 4. It is sandy loam, sandy clay loam, clay loam, or loam.

The C horizon has hue of 10YR to 5G or is neutral in hue. It has value of 4 to 7 and chroma of 0 to 2. It is commonly sand, sandy loam, fine sandy loam, or sandy clay loam. In some pedons, however, it has stratified layers of loam and clay loam.

Formation of the Soils

In this section the factors of soil formation are related to the soils in Franklin County. In addition, the processes of horizon differentiation are explained.

Factors of Soil Formation

Soil is a natural body at or near the earth's surface that has formed as a result of five major factors. These factors are parent material, climate, plants and animals, relief, and time *(4)*. The physical, chemical, and biological properties of a soil, which can be seen, felt, or determined by laboratory analysis, result directly from the interaction of these factors.

Parent Material

Parent material is the geologic and biological material in which soils form. It determines the limits of the chemical and mineralogical composition of the soils.

Most of the soils in Franklin County formed in unconsolidated marine sediments of the Pleistocene and recent geologic ages. Quartz sand and small amounts of marine clays and silts are parent materials that were once the components of sea bottoms, coastal bars, and spits. Plummer and Leon soils are examples of soils that formed in these unconsolidated marine sediments.

Some of the soils in the county, such as Newhan soils on recent coastal dunes and Kureb soils on relict coastal dunes, formed in windblown sand. Others, such as Wehadkee and Meggett soils, formed in fluvial sediments on the flood plain along the Apalachicola River. These sediments were transported by the river and its tributaries from nearby areas and from the Piedmont and coastal plains of Georgia and Alabama. Some soils in the county formed primarily in decaying plant materials. Pamlico soils are examples.

Climate

Franklin County has a humid subtropical climate. The average annual rainfall is about 56 inches, and winters are short and mild. The abundant rainfall and warm temperatures cause intense chemical and biological activity. As rainwater percolates through the soil, it carries soluble minerals downward. Warm temperatures accelerate the decomposition of organic material at the surface. Thus most of the moderately well drained to excessively drained soils in Franklin County have a thin surface layer containing little organic matter.

Plants and Animals

Plants and animals play a major role in the cycling of nutrients in the soil. Organic material from the surface washes into the root zone of plants, which absorb nutrients for growth. Leaf litter and other plant material then fall to the ground, and the cycle begins again.

Many organisms mix the soil layers through burrowing. Soil layers can also be mixed when trees are uprooted by high winds. This process of mixing is called pedoturbation. Plants and animals also can affect soil formation by transforming minerals through their metabolic functions.

Relief

Relief has influenced soil formation in Franklin County primarily because of its effect on depth to the water table. Relatively high relief occurs mostly in the coastal areas, where the topography is characterized by recent and relict dunes and swales. Generally, the soils on the crests and upper side slopes of coastal dunes do not have a water table within a depth of 72 inches. As a result, plant growth is sparse, little organic matter is generated, and the surface layer is thin and light colored. Further downslope, the soils have progressively higher water tables and plant growth is more lush. Also, the soils in the lower landscape positions have wetter conditions that slow the rate decomposition of organic matter and result in a thicker and darker surface layer.

Much of the county has areas of very low relief. These areas have swamps because of slow surface drainage. The soils in these areas are wet and have a thick, dark surface layer.

Time

Although the other four factors of soil formation continue to alter soil conditions, the changes they cause

are not readily seen in the course of a lifetime. Most of the chemical and physical properties of the soils in Franklin County result from hundreds or even thousands of years of formation processes. From the perspective of geologic time, however, most of the soils are relatively young.

The difference in the length of time that parent materials have been in place commonly is reflected in the degree of development of soil horizons. Soils of different ages in similar landscape positions show distinct differences in their development. For example, Newhan soils on recent coastal dunes show little or no profile development. Kureb soils, however, which are in similar landscape positions on older, relict dunes on the mainland, have a prominent leached subsurface horizon underlain by a bright yellowish brown subsoil horizon.

Processes of Horizon Differentiation

In Franklin County, the five factors of soil formation have resulted in horizon differentiation through four general processes. These processes are additions, losses, translocations, and transformations.

The major additions to the soils result from the accumulation of plant debris on the soil surface, which contributes to the content of organic matter in the topsoil. Some areas, especially areas of the Newhan and Corolla soils near the coastal beaches, receive additions of windblown sand, which accumulates on the surface.

Carbonates and other soluble minerals are lost as rainwater percolates downward through and out of the soil. Erosion is the loss of soil material from the surface resulting from the forces of water and wind. Erosion is most prominent where surface-stabilizing natural vegetation has been removed or destroyed. It results in a thin A horizon and the exposure of the subsoil at the surface.

A common type of translocation involves the downward movement of clay particles and their subsequent accumulation in the subsoil. The argillic horizon in Leefield soils is an example of the effect of the translocation of clay. Animals, especially insects, translocate soil material from the lower horizons to the surface. This type of activity often results in an indistinct boundary between the surface and subsurface layers.

The reduction and oxidation of iron is a common type of transformation. The zone in the soil where the water table fluctuates is mottled in shades of gray and red. These colors are indicative of reduced and oxidized forms of iron.

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Glossary

ABC soil. A soil having an A, a B, and a C horizon.

AC soil. A soil having only an A and a C horizon. Commonly such soil formed in recent alluvium or on steep, rocky slopes.

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Association, soil. A group of soils geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

Basal till. Compact glacial till deposited beneath the ice.

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, K), expressed as a percentage of the total cation-exchange capacity.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bisequum. Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Blowout. A shallow depression from which all or most of the soil material has been removed by the wind. A blowout has a flat or irregular floor formed by a resistant layer or by an accumulation of pebbles or cobbles. In some blowouts the water table is exposed.

Bottom land. The normal flood plain of a stream, subject to flooding.

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Catena. A sequence, or "chain," of soils on a landscape that formed in similar kinds of parent material but that have different characteristics as a result of differences in relief and drainage.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Coarse fragments. If round, mineral or rock particles 2 millimeters to 25 centimeters (10 inches) in diameter; if flat, mineral or rock particles (flagstone) 15 to 38 centimeters (6 to 15 inches) long.

Coarse textured soil. Sand or loamy sand.

Cobblestone (or cobble). A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Colluvium. Soil material, rock fragments, or both moved by creep, slide, or local wash and deposited at the base of steep slopes.

Complex, soil. A map unit of two or more kinds of soil in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils are somewhat similar in all areas.

Concretions. Grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrated compounds or cemented soil grains. The composition of most concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are common compounds in concretions.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are:

Loose.—Noncoherent when dry or moist; does not hold together in a mass.

Friable.—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

Firm.—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Plastic.—When wet, readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.

Sticky.—When wet, adheres to other material and tends to stretch somewhat and pull apart rather than to pull free from other material.

Hard.—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

Soft.—When dry, breaks into powder or individual grains under very slight pressure.

Cemented.—Hard; little affected by moistening.

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Decreasers. The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

Deferred grazing. Postponing grazing or resting grazingland for a prescribed period.

Depth to rock (in tables). Bedrock is too near the surface for the specified use.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of periods of saturation or partial saturation during soil formation, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized:

Excessively drained.—Water is removed from the soil very rapidly. Excessively drained soils are commonly very coarse textured, rocky, or shallow. Some are steep. All are free of the mottling related to wetness.

Somewhat excessively drained.—Water is removed from the soil rapidly. Many somewhat excessively drained soils are sandy and rapidly pervious. Some are shallow. Some are so steep that much of the water they receive is lost as runoff. All are free of the mottling related to wetness.

Well drained.—Water is removed from the soil readily, but not rapidly. It is available to plants throughout most of the growing season, and wetness does not inhibit growth of roots for significant periods during most growing seasons. Well drained soils are commonly medium textured. They are mainly free of mottling.

Moderately well drained.—Water is removed from the soil somewhat slowly during some periods. Moderately well drained soils are wet for only a short time during the growing season, but periodically they are wet long enough that most mesophytic crops are affected. They commonly have a slowly pervious layer within or directly below the solum or periodically receive high rainfall, or both.

Somewhat poorly drained.—Water is removed

slowly enough that the soil is wet for significant periods during the growing season. Wetness markedly restricts the growth of mesophytic crops unless artificial drainage is provided. Somewhat poorly drained soils commonly have a slowly pervious layer, a high water table, additional water from seepage, nearly continuous rainfall, or a combination of these.

Poorly drained.—Water is removed so slowly that the soil is saturated periodically during the growing season or remains wet for long periods. Free water is commonly at or near the surface for long enough during the growing season that most mesophytic crops cannot be grown unless the soil is artificially drained. The soil is not continuously saturated in layers directly below plow depth. Poor drainage results from a high water table, a slowly pervious layer within the profile, seepage, nearly continuous rainfall, or a combination of these.

Very poorly drained.—Water is removed from the soil so slowly that free water remains at or on the surface during most of the growing season. Unless the soil is artificially drained, most mesophytic crops cannot be grown. Very poorly drained soils are commonly level or depressed and are frequently ponded. Yet, where rainfall is high and nearly continuous, they can have moderate or high slope gradients.

Drainage, surface. Runoff, or surface flow of water, from an area.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Eolian soil material. Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic)—Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated)—Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as fire, that exposes the surface.

Excess fines (in tables). Excess silt and clay in the soil. The soil is not a source of gravel or sand for construction purposes.

Excess salt (in tables). Excess water-soluble salts in the soil that restrict the growth of most plants.

Excess sulfur (in tables). An excessive amount of sulfur in the soil. The sulfur causes extreme acidity if the soil is drained, and the growth of most plants is restricted.

Fallow. Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grains are grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

Fast intake (in tables). The movement of water into the soil is rapid.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Fibric soil material (peat). The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity.*

Fine textured soil. Sandy clay, silty clay, or clay.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Foot slope. The inclined surface at the base of a hill.

Forb. Any herbaceous plant that is not a grass or a sedge.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors and mottles.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock up to 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that is 15 to 50 percent, by volume, rounded or angular rock fragments, not prominently flattened, up to 3 inches (7.6 centimeters) in diameter.

Green manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water (geology). Water filling all the unblocked pores of the material below the water table.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hardpan. A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

Hemic soil material (mucky peat). Organic soil material intermediate in degree of decomposition between the less decomposed fibric and the more decomposed sapric material.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the "Soil Survey Manual." The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue at the surface of a mineral soil.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an O, A, or E horizon. The B horizon is, in part, a layer of transition from the overlying horizon to the underlying C horizon. The B horizon also has distinctive characteristics, such as accumulation of clay, sesquioxides, humus, or a combination of these; prismatic or blocky structure; redder or browner colors than those in the A horizon; or a combination of these. The combined A and B horizons are generally called the solum, or true soil. If a soil does not have a B horizon, the A horizon alone is the solum.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the A or B horizon. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, the Arabic numeral 2 precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Consolidated rock (unweathered bedrock) beneath the soil. The bedrock commonly underlies a C horizon but can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff-producing characteristics. The chief consideration is the inherent capacity of soil bare of vegetation to permit infiltration. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff. Soils are assigned to four groups. In group A are soils having a high infiltration rate when thoroughly wet and having a low runoff potential. They are mainly deep, well drained, and sandy or gravelly. In group D, at the other extreme, are soils having a very slow infiltration rate and thus a high runoff potential. They have a claypan or clay layer at or near the surface, have a permanent high water table, or are shallow over nearly impervious bedrock or other material. A soil is assigned to two hydrologic groups if part of the acreage is artificially drained and part is undrained.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Increasers. Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasers commonly are the shorter plants and the plants that are the less palatable to livestock.

Infiltration. The downward entry of water into the

immediate surface of soil or other material. This contrasts with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are:
Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.
Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.
Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.
Corrugation.—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.
Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.
Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.
Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.
Subirrigation.—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.
Wild flooding.—Water, released at high points, is allowed to flow onto an area without controlled distribution.

Large stones (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Leaching. The removal of soluble material from soil or other material by percolating water.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Low strength. The soil is not strong enough to support loads.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Mottling generally indicates poor aeration and impeded drainage. Descriptive terms are as follows: abundance—*few, common,* and *many*; size—*fine, medium,* and *coarse*; and contrast—*faint, distinct,* and *prominent.* The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium,* from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse,* more than 15 millimeters (about 0.6 inch).

Muck. Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Neutral soil. A soil having a pH value between 6.6 and 7.3. (See Reaction, soil.)

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly

nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The downward movement of water through the soil.

Percs slowly (in tables). The slow movement of water through the soil adversely affects the specified use.

Permeability. The quality of the soil that enables water to move through the profile. Permeability is measured as the number of inches per hour that water moves through the saturated soil. Terms describing permeability are:

Very slow	less than 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 incn to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management. For example, slope, stoniness, and thickness.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (in tables). Subsurface tunnels or pipelike cavities are formed by water moving through the soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plinthite. The sesquioxide-rich, humus-poor, highly weathered mixture of clay with quartz and other diluents. It commonly appears as red mottles, usually in platy, polygonal, or reticulate patterns. Plinthite changes irreversibly to an ironstone hardpan or to irregular aggregates on repeated wetting and drying, especially if it is exposed also to heat from the sun. In a moist soil, plinthite can be cut with a spade. It is a form of laterite.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poor filter (in tables). Because of rapid permeability, the soil may not adequately filter effluent from a waste disposal system.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Range condition. The present composition of the plant community on a range site in relation to the potential climax plant community for that site. Range condition is expressed as excellent, good, fair, or poor on the basis of how much the present plant community has departed from the potential.

Rangeland. Land on which the potential climax vegetation is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannahs, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.

Range site. An area of rangeland where climate, soil, and relief are sufficiently uniform to produce a distinct climax plant community. A range site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other range sites in kind or proportion of species or total production.

Reaction, soil. A measure of the acidity or alkalinity of a soil expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Extremely acid	below 4.5
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Medium acid	5.6 to 6.0

Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Mildly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rippable. Rippable bedrock or hardpan can be excavated using a single-tooth ripping attachment mounted on a tractor with a 200-300 draw bar horsepower rating.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Saline soil. A soil containing soluble salts in an amount that impairs the growth of plants. A saline soil does not contain excess exchangeable sodium.

Salty water (in tables). Water is too salty for consumption by livestock.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sapric soil material (muck). The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

Seepage (in tables). The movement of water through the soil adversely affects the specified use.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer or of the underlying material. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shrink-swell. The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75 feet.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Slope (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

Slow intake (in tables). The slow movement of water into the soil.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Small stones (in tables). Rock fragments less than 3 inches (7.6 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and plant and animal activities are largely confined to the solum.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to soil blowing and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular

cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from soil blowing and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Breaking up a compact subsoil by pulling a special chisel through the soil.

Substratum. The part of the soil below the solum.

Subsurface layer. Technically, the E horizon. Generally refers to a leached horizon lighter in color and lower in organic matter content than the overlying surface layer.

Summer fallow. The tillage of uncropped land during the summer to control weeds and allow storage of moisture in the soil for the growth of a later crop. A practice common in semiarid regions, where annual precipitation is not enough to produce a crop every year. Summer fallow is frequently practiced before planting winter grain.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Terrace. An embankment, or ridge, constructed on the contour or at a slight angle to the contour across sloping soils. The terrace intercepts surface runoff, so that water soaks into the soil or flows slowly to a prepared outlet.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay.* The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer (in tables). An otherwise suitable soil material that is too thin for the specified use.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toe slope. The outermost inclined surface at the base of a hill; part of a foot slope.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Upland (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Variegation. Refers to patterns of contrasting colors that are assumed to be inherited from the parent material rather than to be the result of poor drainage.

Weathering. All physical and chemical changes produced by atmospheric agents in rocks or other deposits at or near the earth's surface. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Tables

TABLE 1.--TEMPERATURE AND PRECIPITATION

(Recorded at Apalachicola, Florida)

Month	Temperature			Normal total precipitation
	Normal monthly mean	Normal daily maximum	Normal daily minimum	
	°F	°F	°F	In
January	55.1	62.3	47.9	3.14
February	56.8	64.0	49.5	3.91
March	61.0	68.0	54.0	4.52
April	67.5	74.3	60.7	4.30
May	74.8	81.7	67.9	2.88
June	80.2	86.7	73.7	5.30
July	81.5	87.6	75.4	7.93
August	81.5	87.7	75.3	7.74
September	78.9	84.8	73.0	8.53
October	71.2	78.5	63.8	2.44
November	61.3	69.1	53.4	2.58
December	55.8	63.2	48.4	2.96
Yearly:				
Average	68.8	75.7	61.9	---
Total	---	---	---	56.23

TABLE 2.--FREEZE DATES IN SPRING AND FALL

Freeze threshold temperature	Mean date of last spring occurrence	Mean date of first spring occurrence	Mean number of days between dates	Years of record, spring	Number of occurrences in spring	Years of record, fall	Number of occurrences in fall
°F							
APALACHICOLA:							
32	Feb. 2	Dec. 21	322	30	25	30	13
28	Jan. 16	Dec. 27	345	30	13	30	7
24	Jan. 4	---	---	30	7	30	4
20	---	---	---	30	2	30	0
16	---	---	---	30	0	30	0
CARRABELLE:							
32	Feb. 21	Dec. 5	287	30	29	29	23
28	Feb. 6	Dec. 14	311	29	24	29	17
24	Jan. 17	Dec. 23	340	27	12	29	11
20	Jan. 8	---	---	27	7	29	4
16	---	---	---	27	3	29	0

TABLE 3.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Acres	Percent
2	Albany fine sand	2,788	0.8
3	Beaches	1,647	0.5
4	Dirego and Bayvi soils, tidal	4,847	1.4
5	Aquents, nearly level	650	0.2
6	Blanton fine sand, 0 to 5 percent slopes	1,240	0.4
7	Bohicket and Tisonia soils, tidal	14,509	4.2
8	Ridgewood sand, 0 to 5 percent slopes	4,863	1.4
9	Chaires sand	1,150	0.3
10	Corolla sand, 0 to 5 percent slopes	3,852	1.1
11	Dorovan-Pamlico complex, depressional	3,198	0.9
12	Lynchburg loamy fine sand	308	0.1
13	Hurricane sand	1,006	0.3
14	Harbeson mucky loamy sand, depressional	3,140	0.9
15	Ortega fine sand, 0 to 5 percent slopes	3,997	1.1
16	Bonsai mucky fine sand, frequently flooded	1,970	0.6
17	Kershaw sand, 2 to 5 percent slopes	4,787	1.4
18	Kershaw sand, 5 to 12 percent slopes	821	0.2
19	Kureb fine sand, 3 to 8 percent slopes	435	0.1
20	Lynn Haven sand	7,410	2.1
21	Leefield sand	764	0.2
22	Leon sand	24,800	7.1
23	Maurepas muck, frequently flooded	5,007	1.4
24	Mandarin fine sand	5,658	1.6
25	Chowan, Brickyard, and Kenner soils, frequently flooded	19,980	5.7
26	Duckston sand, occasionally flooded	2,834	0.8
27	Pelham fine sand	4,968	1.4
28	Plummer fine sand	27,276	7.9
29	Resota fine sand, 0 to 5 percent slopes	5,229	1.5
30	Rutlege loamy fine sand, depressional	1,838	0.5
31	Rutlege fine sand	37,000	10.7
32	Sapelo fine sand	1,731	0.5
33	Scranton fine sand	50,200	14.3
34	Surrency fine sand	10,381	3.0
35	Stilson fine sand	805	0.2
36	Pickney-Pamlico complex, depressional	16,813	4.9
37	Tooles-Meadowbrook complex, depressional	3,330	1.0
38	Meadowbrook sand	8,740	2.5
39	Scranton sand, slough	29,281	8.4
40	Newhan-Corolla complex, rolling	1,822	0.5
41	Pamlico-Pickney complex, frequently flooded	8,255	2.4
42	Meadowbrook, Meggett, and Tooles soils, frequently flooded	1,310	0.4
43	Meadowbrook sand, slough	8,508	2.4
44	Tooles sand	1,455	0.4
45	Wehadkee-Meggett complex, frequently flooded	1,930	0.6
46	Duckston-Rutlege-Corolla complex	4,925	1.4
47	Duckston-Bohicket-Corolla complex	1,080	0.3
48	Udorthents, nearly level	160	*
	Total	348,698	100.0

* Less than 0.1 percent.

TABLE 4.--LAND CAPABILITY AND YIELDS PER ACRE OF CROPS AND PASTURE

(Yields are those that can be expected under a high level of management. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)

Soil name and map symbol	Land capability	Corn	Soybeans	Bahiagrass
		Bu	Bu	AUM*
2------------------------ Albany	IIIw	65	25	6.5
3**. Beaches				
4------------------------ Dirego and Bayvi	VIIIw	---	---	---
5. Aquents				
6------------------------ Blanton	IIIs	50	25	6.5
7------------------------ Bohicket and Tisonia	VIIIw	---	---	---
8------------------------ Ridgewood	IVs	---	---	7.0
9------------------------ Chaires	IVw	50	20	9.0
10----------------------- Corolla	VIIs	---	---	---
11----------------------- Dorovan-Pamlico	VIIw	---	---	---
12----------------------- Lynchburg	IIw	85	45	10.0
13----------------------- Hurricane	IIIw	50	20	7.0
14----------------------- Harbeson	VIw	---	---	---
15----------------------- Ortega	IIIs	---	---	6.0
16----------------------- Bonsai	VIIw	---	---	---
17, 18------------------- Kershaw	VIIs	---	---	3.5
19----------------------- Kureb	VIIs	---	---	---
20----------------------- Lynn Haven	IVw	70	---	7.5
21----------------------- Leefield	IIw	75	35	8.0

See footnotes at end of table.

TABLE 4.--LAND CAPABILITY AND YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Land capability	Corn	Soybeans	Bahiagrass
		Bu	Bu	AUM*
22 Leon	IVw	50	20	7.5
23 Maurepas	VIIIw	---	---	---
24 Mandarin	VIs	---	---	6.0
25 Chowan, Brickyard, and Kenner	VIIw	---	---	---
26 Duckston	VIIw	---	---	---
27 Pelham	Vw	65	30	6.0
28 Plummer	IVw	---	---	5.0
29 Resota	VIs	---	---	5.0
30 Rutlege	VIIw	---	---	---
31 Rutlege	Vw	---	---	---
32 Sapelo	IVw	50	20	7.5
33 Scranton	IVw	65	30	8.0
34 Surrency	VIw	---	---	---
35 Stilson	IIw	70	35	7.5
36:				
Pickney	VIw	---	---	---
Pamlico	VIIw	---	---	---
37 Tooles-Meadowbrook	VIIw	---	---	---
38 Meadowbrook	IVw	65	30	5.0
39 Scranton	VIw	85	30	8.0
40:				
Newhan	VIIIs	---	---	---
Corolla	VIIs	---	---	---

See footnotes at end of table.

TABLE 4.--LAND CAPABILITY AND YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Land capability	Corn	Soybeans	Bahiagrass
		Bu	Bu	AUM*
41:				
Pamlico	VIIw	---	---	---
Pickney	VIw	---	---	---
42 Meadowbrook, Meggett, and Tooles	VIw	---	---	---
43 Meadowbrook	VIw	---	---	8.0
44 Tooles	IIIw	70	30	8.0
45 Wehadkee-Meggett	VIIw	---	---	---
46 Duckston-Rutlege-Corolla	VIIw	---	---	---
47 Duckston-Bohicket-Corolla	VIIw	---	---	---
48. Udorthents				

* Animal unit month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

** See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 5.--WOODLAND MANAGEMENT AND PRODUCTIVITY

(Only the soils suitable for production of commercial trees are listed. Absence of an entry indicates that information was not available)

Soil name and map symbol	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class*	Trees to plant
2-----------------Albany	11W	Slight	Moderate	Moderate	Slight	Moderate	Slash pine----------	85	11	Slash pine, longleaf pine, loblolly pine.
							Loblolly pine-------	95	9	
							Longleaf pine-------	80	7	
6-----------------Blanton	10S	Slight	Moderate	Moderate	Slight	Slight	Slash pine----------	78	10	Slash pine, longleaf pine.
							Loblolly pine-------	80	8	
							Longleaf pine-------	70	6	
							Bluejack oak--------	---	---	
							Turkey oak----------	---	---	
							Southern red oak----	---	---	
							Live oak------------	---	---	
8-----------------Ridgewood	9S	Slight	Moderate	Moderate	Slight	Moderate	Slash pine----------	75	9	Slash pine, longleaf pine.
							Longleaf pine-------	65	5	
							Laurel oak----------	---	---	
							Live oak------------	---	---	
							Water oak-----------	---	---	
							Turkey oak----------	---	---	
9-----------------Chaires	10W	Slight	Moderate	Moderate	Slight	Moderate	Slash pine----------	80	10	Slash pine.
							Longleaf pine-------	65	5	
							Water oak-----------	---	---	
							Laurel oak----------	---	---	
11**:										
Dorovan-----------	7W	Slight	Severe	Severe	--------	--------	Blackgum------------	70	7	***
							Sweetbay------------	---	---	
							Baldcypress---------	---	---	
							Swamp tupelo--------	---	---	
							Green ash-----------	---	---	
							Red maple-----------	---	---	
							Water tupelo--------	---	---	
Pamlico-----------	4W	Slight	Severe	Severe	Severe	Severe	Pond pine-----------	55	4	***
							Baldcypress---------	---	---	
							Water tupelo--------	---	---	
							Sweetbay------------	---	---	

See footnotes at end of table.

TABLE 5.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class*	Trees to plant
12 Lynchburg	12W	Slight	Moderate	Slight	Slight	Severe	Slash pine	91	12	Slash pine, loblolly pine, American sycamore, sweetgum.
							Loblolly pine	86	9	
							Longleaf pine	74	6	
							Yellow-poplar	92	6	
							Sweetgum	90	7	
							Southern red oak	---	---	
							White oak	---	---	
							Blackgum	---	---	
13 Hurricane	10W	Slight	Moderate	Moderate	Slight	Moderate	Slash pine	78	10	Slash pine, loblolly pine, longleaf pine.
							Longleaf pine	75	6	
							Loblolly pine	90	9	
							Blackjack oak	---	---	
							Post oak	---	---	
							Turkey oak	---	---	
14 Harbeson	6W	Slight	Severe	Severe	Moderate	Severe	Baldcypress	---	6	
							Atlantic white-cedar	---	---	
							Blackgum	---	---	
							Sweetgum	---	---	
							Sweetbay	---	---	
							Slash pine	---	---	
15 Ortega	8S	Slight	Moderate	Moderate	Slight	Moderate	Slash pine	70	8	Slash pine, longleaf pine.
							Longleaf pine	70	6	
							Blackjack oak	---	---	
							Post oak	---		
							Turkey oak	---	---	
16 Bonsai	7W	Slight	Severe	Severe	Severe	Severe	Baldcypress	---	---	
17, 18 Kershaw	6S	Slight	Moderate	Severe	Slight	Slight	Slash pine	55	6	Slash pine, longleaf pine, sand pine.
							Longleaf pine	55	3	
19 Kureb	3S	Slight	Moderate	Severe	Slight	Slight	Longleaf pine	53	3	Longleaf pine, sand pine, slash pine.
							Slash pine	55	6	
20 Lynn Haven	11W	Slight	Moderate	Moderate	Slight	Moderate	Slash pine	85	11	Slash pine, loblolly pine.
							Loblolly pine	80	8	
							Longleaf pine	70	6	
							Pond pine	70	---	

See footnotes at end of table.

TABLE 5.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Potential productivity: Common trees	Site index	Productivity class*	Trees to plant
21 Leefield	11W	Slight	Moderate	Moderate	--------	--------	Slash pine	84	11	Slash pine, loblolly pine.
							Loblolly pine	84	8	
							Longleaf pine	70	6	
22 Leon	9W	Slight	Moderate	Moderate	Moderate	Moderate	Slash pine	75	9	Slash pine.
							Longleaf pine	65	5	
24 Mandarin	8S	Slight	Moderate	Severe	Slight	Moderate	Slash pine	70	8	Slash pine.
							Longleaf pine	60	4	
							Live oak	---	---	
25**:										
Chowan	9W	Slight	Severe	Severe	Severe	Severe	Water tupelo	84	9	***
							Green ash	98	6	
							Sweetgum	---	---	
							Baldcypress	---	---	
							Red maple	---	---	
							Pond pine	---	---	
							Atlantic white-cedar	---	---	
Brickyard	7W	Slight	Severe	Severe	Severe	Severe	Slash pine	---	---	***
Kenner.										
27 Pelham	11W	Slight	Severe	Severe	--------	--------	Slash pine	85	11	Slash pine, loblolly pine.
							Loblolly pine	90	9	
							Longleaf pine	80	7	
							Sweetgum	80	6	
							Blackgum	80	8	
							Water oak	80	5	
28 Plummer	9W	Slight	Severe	Severe	--------	--------	Slash pine	75	---	Loblolly pine, slash pine.
							Loblolly pine	75	9	
							Longleaf pine	70	6	
29 Resota	8S	Slight	Moderate	Severe	Slight	Moderate	Slash pine	70	8	Slash pine, longleaf pine, sand pine.
							Longleaf pine	65	5	
							Sand pine	60	3	
							Sand live oak	---	---	
31 Rutlege	8W	Slight	Severe	Severe	Moderate	--------	Slash pine	70	8	Slash pine, loblolly pine.
							Loblolly pine	90	9	
							Sweetgum	90	7	
							Pin oak	85	5	

See footnotes at end of table.

TABLE 5.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Potential productivity: Common trees	Site index	Productivity class*	Trees to plant
32------------------ Sapelo	10W	Slight	Moderate	Moderate	--------	--------	Slash pine----------	77	10	Slash pine, loblolly pine, longleaf pine.
							Loblolly pine-------	77	7	
							Longleaf pine-------	65	5	
33------------------ Scranton	10W	Slight	Moderate	Slight	Slight	Severe	Slash pine----------	75	10	Slash pine, loblolly pine, longleaf pine.
							Loblolly pine-------	80	8	
							Sweetgum------------	---	---	
							Longleaf pine-------	70	6	
34------------------ Surrency	11W	Slight	Severe	Severe	Slight	Severe	Slash pine----------	85	11	Slash pine.
							Sweetgum------------	---	---	
							Blackgum------------	---	---	
							Water oak-----------	---	---	
							Baldcypress---------	---	---	
							Water tupelo--------	---	---	
35------------------ Stilson	12W	Slight	Moderate	Slight	Slight	--------	Slash pine----------	95	12	Slash pine, loblolly pine, longleaf pine.
							Longleaf pine-------	80	7	
							Loblolly pine-------	95	9	
							Sweetgum------------	---	---	
36**---------------- Pickney-Pamlico	7W	Slight	Severe	Severe	Moderate	Moderate	Sweetgum------------	90	7	***
							Baldcypress---------	---	---	
							Water tupelo--------	---	---	
37**:										
Tooles------------	2W	Slight	Severe	Severe	Moderate	Severe	Pondcypress---------	75	2	***
							Red maple-----------	---	---	
							Baldcypress---------	---	---	
							Blackgum------------	---	---	
							Pond pine-----------	---	---	
							Sweetbay------------	---	---	
Meadowbrook-------	7W	Slight	Severe	Severe	Moderate	Severe	Baldcypress---------	108	7	***
							Pond pine-----------	---	---	
							Sweetgum------------	---	---	
							Pondcypress---------	75	2	
38------------------ Meadowbrook	10W	Slight	Severe	Severe	Slight	Severe	Slash pine----------	83	10	Loblolly pine, slash pine, longleaf pine.
							Loblolly pine-------	91	9	
							Longleaf pine-------	70	6	
							Live oak------------	---	---	
							Water oak-----------	---	---	

See footnotes at end of table.

TABLE 5.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class*	Trees to plant
39----------------- Scranton	8W	Slight	Moderate	Slight	Moderate	Severe	Slash pine----------	70	8	Slash pine, loblolly pine.
							Loblolly pine-------	60	8	
							Sweetgum----------	---	---	
41**:										
Pamlico-----------	4W	Slight	Severe	Severe	--------	--------	Pond pine-----------	---	---	***
							Baldcypress---------	---	---	
							Water tupelo--------	---	---	
Pickney-----------	7W	Slight	Severe	Severe	Moderate	Moderate	Sweetgum------------	90	7	***
							Water tupelo--------	---	---	
							Water oak-----------	---	---	
							Pond pine-----------	---	---	
							Yellow-poplar-------	---	---	
							Blackgum------------	---	---	
							Baldcypress---------	---	---	
42**:										
Meadowbrook-------	10W	Slight	Severe	Severe	Slight	Severe	Slash pine----------	83	10	Slash pine, loblolly pine.
							Loblolly pine-------	91	9	
							Blackgum------------	---	---	
							Laurel oak----------	---	---	
							Red maple-----------	---	---	
							Sweetgum------------	---	---	
							Water oak-----------	---	---	
Meggett-----------	13W	Slight	Severe	Severe	Severe	Severe	Slash pine----------	100	13	Slash pine, loblolly pine.
							Loblolly pine-------	100	11	
							Pond pine-----------	75	---	
Tooles------------	11W	Slight	Severe	Moderate	Moderate	Severe	Slash pine----------	85	11	Slash pine, loblolly pine.
							Baldcypress---------	108	7	
							Red maple-----------	---	---	
							Water tupelo--------	---	---	
							Water oak-----------	---	---	
43----------------- Meadowbrook	8W	Slight	Severe	Severe	Moderate	Severe	Slash pine----------	70	8	Slash pine.
							Loblolly pine-------	---	---	
							Longleaf pine-------	---	---	
							Live oak------------	---	---	
							Water oak-----------	---	---	

See footnotes at end of table.

TABLE 5.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Potential productivity: Common trees	Site index	Productivity class*	Trees to plant
44 Tooles	11W	Slight	Severe	Moderate	Moderate	Severe	Slash pine	85	11	Slash pine, loblolly pine.
							Loblolly pine	95	9	
							Cabbage palm	---	---	
							Laurel oak	---	---	
							Sweetgum	---	---	
							Sweetbay	---	---	
							American elm	---	---	
							Live oak	---	---	
45**:										
Wehadkee	8W	Slight	Severe	Moderate	Moderate	Severe	Yellow-poplar	100	8	***
							Sweetgum	94	8	
							Loblolly pine	93	10	
							Willow oak	110	8	
							Water oak	91	6	
							Green ash	---	---	
							White ash	---	---	
							American sycamore	---	---	
							River birch	---	---	
							Slash pine	85	11	
Meggett	13W	Slight	Severe	Severe	Severe	Severe	Slash pine	100	13	Slash pine, loblolly pine.
							Loblolly pine	100	11	
							Pond pine	75	---	

* Productivity class is the yield in cubic meters per hectare per year calculated at the age of culmination of mean annual increment for fully stocked natural stands.

** See description of the map unit for composition and behavior characteristics of the map unit.

*** Generally not suited to the production of pine trees because of ponding, flooding, or extended wetness; may be suited to baldcypress and hardwood production through natural regeneration.

TABLE 6.--RECREATIONAL DEVELOPMENT

(Some terms that describe restrictive soil features are defined in the "Glossary." See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated)

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
2: Albany	Severe: wetness.	Severe: too sandy.	Severe: too sandy, wetness.	Severe: too sandy.	Severe: droughty.
3*. Beaches					
4*:					
Dirego	Severe: flooding, wetness, excess humus.	Severe: wetness, excess humus, excess salt.	Severe: excess humus, wetness, flooding.	Severe: wetness, excess humus.	Severe: excess salt, excess sulfur, wetness.
Bayvi	Severe: flooding, wetness, too sandy.	Severe: wetness, too sandy, excess salt.	Severe: too sandy, wetness, flooding.	Severe: wetness, too sandy.	Severe: excess salt, wetness, droughty.
5. Aquents					
6: Blanton	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
7*:					
Bohicket	Severe: flooding, percs slowly.	Severe: wetness, excess salt.	Severe: flooding.	Severe: wetness.	Severe: excess salt, excess sulfur, flooding.
Tisonia	Severe: flooding, wetness, percs slowly.	Severe: wetness, excess humus, excess salt.	Severe: excess humus, wetness, flooding.	Severe: wetness, excess humus.	Severe: excess salt, excess sulfur, wetness.
8: Ridgewood	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: droughty.
9: Chaires	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.	Severe: wetness, droughty.
10: Corolla	Severe: flooding, too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
11*:					
Dorovan	Severe: ponding, excess humus.	Severe: ponding, excess humus.	Severe: excess humus, ponding.	Severe: ponding, excess humus.	Severe: ponding, excess humus.
Pamlico	Severe: ponding, excess humus.	Severe: ponding, excess humus.	Severe: ponding, excess humus.	Severe: ponding, excess humus.	Severe: ponding, excess humus.

See footnote at end of table.

TABLE 6.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
12-------------------- Lynchburg	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
13-------------------- Hurricane	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
14-------------------- Harbeson	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
15-------------------- Ortega	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
16-------------------- Bonsai	Severe: flooding, wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness, flooding.	Severe: wetness, too sandy.	Severe: wetness, flooding.
17-------------------- Kershaw	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
18-------------------- Kershaw	Severe: too sandy.	Severe: too sandy.	Severe: slope, too sandy.	Severe: too sandy.	Severe: droughty.
19-------------------- Kureb	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
20-------------------- Lynn Haven	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.	Severe: wetness, droughty.
21-------------------- Leefield	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: wetness, droughty, too sandy.
22-------------------- Leon	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.	Severe: wetness, droughty.
23-------------------- Maurepas	Severe: flooding, excess humus.	Severe: excess humus.	Severe: excess humus, flooding.	Severe: excess humus.	Severe: flooding, excess humus.
24-------------------- Mandarin	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: wetness, droughty.
25*:					
Chowan---------------	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
Brickyard------------	Severe: flooding, wetness, percs slowly.	Severe: wetness, too clayey, percs slowly.	Severe: too clayey, wetness, flooding.	Severe: wetness, too clayey.	Severe: wetness, flooding, too clayey.

See footnote at end of table.

TABLE 6.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
25*:					
Kenner	Severe: flooding, ponding, percs slowly.	Severe: ponding, excess humus, percs slowly.	Severe: excess humus, ponding, flooding.	Severe: ponding, excess humus.	Severe: flooding, ponding, excess humus.
26 Duckston	Severe: flooding, wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.	Severe: wetness, droughty.
27 Pelham	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.	Severe: wetness.
28 Plummer	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.	Severe: wetness, droughty.
29 Resota	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
30 Rutlege	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
31 Rutlege	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
32 Sapelo	Severe: too sandy, wetness.	Severe: too sandy, wetness.	Severe: too sandy, wetness.	Severe: too sandy, wetness.	Severe: droughty, wetness.
33 Scranton	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.	Severe: wetness.
34 Surrency	Severe: flooding, too sandy, wetness.	Severe: too sandy, wetness.	Severe: too sandy, wetness.	Severe: wetness, too sandy.	Severe: wetness.
35 Stilson	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: droughty, too sandy.
36*:					
Pickney	Severe: ponding, too sandy.	Severe: ponding, too sandy.	Severe: too sandy, ponding.	Severe: too sandy, ponding.	Severe: ponding.
Pamlico	Severe: ponding, excess humus.	Severe: ponding, excess humus.	Severe: ponding, excess humus.	Severe: ponding, excess humus.	Severe: ponding, excess humus.
37*:					
Tooles	Severe: ponding, too sandy.	Severe: ponding, too sandy.	Severe: too sandy, ponding.	Severe: ponding, too sandy.	Severe: ponding.
Meadowbrook	Severe: ponding, too sandy.	Severe: ponding, too sandy.	Severe: too sandy, ponding.	Severe: ponding, too sandy.	Severe: ponding, droughty.

See footnote at end of table.

TABLE 6.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
38 Meadowbrook	Severe: flooding, wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.	Severe: wetness, droughty.
39 Scranton	Severe: flooding, wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.	Severe: wetness.
40*:					
Newhan	Severe: flooding, slope, too sandy.	Severe: slope, too sandy.	Severe: slope, too sandy.	Severe: too sandy.	Severe: droughty, slope.
Corolla	Severe: flooding, too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
41*:					
Pamlico	Severe: flooding, ponding, excess humus.	Severe: ponding, excess humus.	Severe: excess humus, ponding, flooding.	Severe: ponding, excess humus.	Severe: ponding, flooding, excess humus.
Pickney	Severe: flooding, too sandy, ponding.	Severe: too sandy, ponding.	Severe: too sandy, flooding, ponding.	Severe: too sandy, ponding.	Severe: flooding, ponding.
42*:					
Meadowbrook	Severe: flooding, wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness, flooding.	Severe: wetness, too sandy.	Severe: flooding, wetness, droughty.
Meggett	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
Tooles	Severe: flooding, wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness, flooding.	Severe: wetness, too sandy.	Severe: wetness, flooding.
43 Meadowbrook	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.	Severe: wetness, droughty.
44 Tooles	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.	Severe: wetness.
45*:					
Wehadkee	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.

See footnote at end of table.

TABLE 6.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
45*:					
Meggett	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
46*:					
Duckston	Severe: flooding, wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.	Severe: wetness, droughty.
Rutlege	Severe: ponding, too sandy.	Severe: ponding, too sandy.	Severe: too sandy, ponding.	Severe: ponding, too sandy.	Severe: ponding, droughty.
Corolla	Severe: flooding, too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
47*:					
Duckston	Severe: flooding, wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.	Severe: wetness, droughty.
Bohicket	Severe: flooding, ponding, percs slowly.	Severe: ponding, excess salt.	Severe: ponding, flooding.	Severe: ponding.	Severe: excess salt, excess sulfur, ponding.
Corolla	Severe: flooding, too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
48 Udorthents	Severe: too sandy, small stones.	Severe: too sandy, small stones.	Severe: too sandy, small stones, large stones.	Severe: too sandy.	Severe: small stones, large stones, droughty.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 7.--WILDLIFE HABITAT

(See text for definitions of "good," "fair," "poor," and "very poor." Absence of an entry indicates that the soil was not rated)

Soil name and map symbol	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
2------------------ Albany	Fair	Fair	Fair	Fair	Fair	Fair	Poor	Fair	Fair	Poor.
3. Beaches										
4*:										
Dirego------------	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Fair	Good	Very poor.	Very poor.	Fair.
Bayvi-------------	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Fair	Good	Very poor.	Very poor.	Fair.
5. Aquents										
6------------------ Blanton	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
7*:										
Bohicket----------	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Good.
Tisonia-----------	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Fair	Very poor.	Very poor.	Poor.
8------------------ Ridgewood	Poor	Poor	Fair	Fair	Fair	Poor	Poor	Poor	Fair	Poor.
9------------------ Chaires	Poor	Fair	Fair	Poor	Fair	Fair	Fair	Fair	Fair	Fair.
10----------------- Corolla	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.
11*:										
Dorovan-----------	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Good.
Pamlico-----------	Very poor.	Very poor.	Poor	Poor	Poor	Good	Good	Very poor.	Poor	Good.
12----------------- Lynchburg	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
13----------------- Hurricane	Poor	Poor	Fair	Fair	Fair	Poor	Very poor.	Poor	Fair	Very poor.
14----------------- Harbeson	Very poor.	Very poor.	Poor	Poor	Poor	Fair	Fair	Poor	Poor	Fair.
15----------------- Ortega	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.

See footnote at end of table.

TABLE 7.--WILDLIFE HABITAT--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
16----- Bonsai	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Poor	Fair	Poor	Fair.
17, 18----- Kershaw	Very poor.	Poor	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Very poor.
19----- Kureb	Very poor.	Poor	Poor	Very poor.	Poor	Very poor.	Very poor.	Poor	Very poor.	Very poor.
20----- Lynn Haven	Poor	Fair	Fair	Poor	Poor	Fair	Fair	Fair	Poor	Fair.
21----- Leefield	Fair	Fair	Good	Fair	Fair	Fair	Fair	Fair	Fair	Fair.
22----- Leon	Poor	Fair	Good	Poor	Fair	Fair	Poor	Fair	Fair	Poor.
23----- Maurepas	Very poor.	Very poor.	Very poor.	Very poor.	---	Fair	Very poor.	Very poor.	Very poor.	Fair.
24----- Mandarin	Very poor.	Poor	Poor	Poor	Fair	Very poor.	Very poor.	Poor	Poor	Very poor.
25*:										
Chowan-----	Poor	Fair	Fair	Fair	Fair	Good	Fair	Fair	Fair	Fair.
Brickyard-----	Poor	Poor	Fair	Good	Fair	Good	Fair	Poor	Good	Fair.
Kenner-----	Very poor.	Very poor.	Very poor.	---	---	Good	Very poor.	Very poor.	---	Good.
26----- Duckston	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Poor	Very poor.	Very poor.	Poor.
27----- Pelham	Poor	Poor	Fair	Fair	Fair	Fair	Fair	Poor	Fair	Fair.
28----- Plummer	Poor	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair.
29----- Resota	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
30, 31----- Rutlege	Very poor.	Poor	Poor	Poor	Poor	Fair	Good	Poor	Poor	Fair.
32----- Sapelo	Poor	Fair	Fair	Poor	Fair	Fair	Fair	Fair	Fair	Fair.
33----- Scranton	Fair	Fair	Good	Fair	Fair	Poor	Poor	Fair	Fair	Poor.
34----- Surrency	Poor	Poor	Poor	Poor	Poor	Fair	Good	Poor	Poor	Fair.
35----- Stilson	Fair	Fair	Good	Fair	Fair	Poor	Poor	Fair	Fair	Poor.

See footnote at end of table.

TABLE 7.--WILDLIFE HABITAT--Continued

Soil name and map symbol	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
36*:										
Pickney	Very poor.	Very poor.	Very poor.	Poor	Poor	Good	Good	Very poor.	Poor	Good.
Pamlico	Very poor.	Very poor.	Poor	Poor	Poor	Good	Good	Very poor.	Poor	Good.
37*:										
Tooles	Very poor.	Very poor.	Very poor.	Fair	Fair	Good	Good	Very poor.	Fair	Good.
Meadowbrook	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Fair	Good	Very poor.	Very poor.	Good.
38 Meadowbrook	Poor	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair.
39 Scranton	Fair	Fair	Good	Fair	Fair	Poor	Poor	Fair	Fair	Poor.
40*:										
Newhan	Very poor.	Poor	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Very poor.
Corolla	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.
41*:										
Pamlico	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
Pickney	Very poor.	Poor	Fair	Poor	Poor	Fair	Very poor.	Poor	Poor	Poor.
42*:										
Meadowbrook	Very poor.	Very poor.	Poor	Fair	Poor	Good	Fair	Very poor.	Poor	Fair.
Meggett	Good	Good	Good	Fair	Good	Good	Good	Good	Good	Good.
Tooles	Poor	Fair	Fair	Fair	Fair	Fair	Good	Poor	Fair	Fair.
43 Meadowbrook	Poor	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair.
44 Tooles	Poor	Fair	Fair	Fair	Fair	Fair	Good	Poor	Fair	Fair.
45*:										
Wehadkee	Very poor.	Poor	Poor	Fair	Fair	Good	Fair	Poor	Fair	Fair.
Meggett	Poor	Fair	Fair	Fair	Good	Good	Good	Fair	Good	Good.
46*:										
Duckston	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Poor	Very poor.	Very poor.	Poor.
Rutlege	Very poor.	Poor	Poor	Poor	Poor	Fair	Good	Poor	Poor	Fair.

See footnote at end of table.

TABLE 7.--WILDLIFE HABITAT--Continued

Soil name and map symbol	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
46*:										
Corolla	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.
47*:										
Duckston	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Poor	Very poor.	Very poor.	Poor.
Bohicket	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Good.
Corolla	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.
48. Udorthents										

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 8.--BUILDING SITE DEVELOPMENT

(Some terms that describe restrictive soil features are defined in the "Glossary." See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
2----------------- Albany	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Moderate: wetness.	Severe: droughty.
3*. Beaches						
4*:						
Dirego-----------	Severe: cutbanks cave, excess humus, wetness.	Severe: subsides, flooding, wetness.	Severe: subsides, flooding, wetness.	Severe: subsides, flooding, wetness.	Severe: subsides, wetness, flooding.	Severe: excess salt, excess sulfur, wetness.
Bayvi------------	Severe: cutbanks cave, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: excess salt, wetness.
5. Aquents						
6----------------- Blanton	Severe: cutbanks cave.	Slight---------	Moderate: wetness.	Slight---------	Slight---------	Severe: droughty.
7*:						
Bohicket---------	Severe: wetness.	Severe: flooding, shrink-swell.	Severe: flooding, shrink-swell.	Severe: flooding, shrink-swell.	Severe: low strength, wetness, shrink-swell.	Severe: excess salt, excess sulfur.
Tisonia----------	Severe: wetness.	Severe: subsides, flooding, wetness.	Severe: flooding, wetness, subsides.	Severe: subsides, flooding, wetness.	Severe: subsides, shrink-swell, low strength.	Severe: excess salt, excess sulfur, wetness.
8----------------- Ridgewood	Severe: cutbanks cave, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: droughty.
9----------------- Chaires	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, droughty.
10---------------- Corolla	Severe: cutbanks cave, wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Moderate: flooding, wetness.	Severe: droughty.
11*:						
Dorovan----------	Severe: excess humus, ponding.	Severe: subsides, ponding, low strength.	Severe: subsides, ponding.	Severe: subsides, ponding.	Severe: subsides, ponding.	Severe: ponding, excess humus.

See footnote at end of table.

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
11*:						
Pamlico	Severe: cutbanks cave, excess humus, ponding.	Severe: flooding, ponding, low strength.	Severe: flooding, ponding.	Severe: flooding, ponding, low strength.	Severe: low strength, ponding.	Severe: ponding, excess humus.
12 Lynchburg	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
13 Hurricane	Severe: cutbanks cave, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Severe: droughty.
14 Harbeson	Severe: cutbanks cave, ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
15 Ortega	Severe: cutbanks cave.	Slight	Moderate: wetness.	Slight	Slight	Severe: droughty.
16 Bonsai	Severe: cutbanks cave, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: wetness, flooding.
17 Kershaw	Severe: cutbanks cave.	Slight	Slight	Slight	Slight	Severe: droughty.
18 Kershaw	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Severe: droughty.
19 Kureb	Severe: cutbanks cave.	Slight	Slight	Moderate: slope.	Slight	Severe: droughty.
20 Lynn Haven	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
21 Leefield	Severe: cutbanks cave, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness, droughty, too sandy.
22 Leon	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, droughty.
23 Maurepas	Severe: excess humus, ponding.	Severe: flooding, ponding, low strength.	Severe: flooding, ponding, low strength.	Severe: flooding, ponding, low strength.	Severe: ponding, flooding.	Severe: ponding, flooding, excess humus.
24 Mandarin	Severe: cutbanks cave, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: droughty.
25*:						
Chowan	Severe: excess humus, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness, low strength.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: wetness, flooding.

See footnote at end of table.

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
25*:						
Brickyard	Severe: wetness.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: shrink-swell, wetness, flooding.	Severe: wetness, flooding, too clayey.
Kenner	Severe: excess humus, ponding.	Severe: flooding, subsides, ponding.	Severe: flooding, subsides, ponding.	Severe: flooding, subsides, ponding.	Severe: flooding, ponding, subsides.	Severe: flooding, ponding, excess humus.
26 Duckston	Severe: cutbanks cave, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: wetness, droughty.
27 Pelham	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
28 Plummer	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
29 Resota	Severe: cutbanks cave.	Slight	Moderate: wetness.	Slight	Slight	Severe: droughty.
30 Rutlege	Severe: cutbanks cave, ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
31 Rutlege	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
32 Sapelo	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: droughty, wetness.
33 Scranton	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
34 Surrency	Severe: cutbanks cave, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness.
35 Stilson	Severe: cutbanks cave.	Slight	Moderate: wetness.	Slight	Slight	Moderate: droughty.
36*:						
Pickney	Severe: cutbanks cave, ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
Pamlico	Severe: cutbanks cave, excess humus, ponding.	Severe: ponding, low strength.	Severe: ponding.	Severe: ponding, low strength.	Severe: low strength, ponding.	Severe: ponding, excess humus.

See footnote at end of table.

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
37*:						
Tooles	Severe: cutbanks cave, ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
Meadowbrook	Severe: cutbanks cave, ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
38 Meadowbrook	Severe: cutbanks cave, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.
39 Scranton	Severe: cutbanks cave, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.
40*:						
Newhan	Severe: cutbanks cave, slope.	Severe: flooding, slope.	Severe: flooding, slope.	Severe: flooding, slope.	Severe: slope.	Severe: droughty, slope.
Corolla	Severe: cutbanks cave, wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Moderate: flooding, wetness.	Severe: droughty.
41*:						
Pamlico	Severe: cutbanks cave, excess humus, ponding.	Severe: flooding, ponding, low strength.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: low strength, flooding, ponding.	Severe: ponding, flooding, excess humus.
Pickney	Severe: cutbanks cave, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.
42*:						
Meadowbrook	Severe: cutbanks cave, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness, droughty.
Meggett	Severe: wetness.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: shrink-swell, wetness, flooding.	Severe: wetness, flooding.
Tooles	Severe: cutbanks cave, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: wetness, flooding.
43 Meadowbrook	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, droughty.
44 Tooles	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.

See footnote at end of table.

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
45*:						
Wehadkee----------	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding, low strength.	Severe: wetness, flooding.
Meggett-----------	Severe: wetness.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: shrink-swell, wetness, flooding.	Severe: wetness, flooding.
46*:						
Duckston----------	Severe: cutbanks cave, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: wetness, droughty.
Rutlege-----------	Severe: cutbanks cave, ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding, droughty.
Corolla-----------	Severe: cutbanks cave, wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Moderate: flooding, wetness.	Severe: droughty.
47*:						
Duckston----------	Severe: cutbanks cave, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: wetness, droughty.
Bohicket----------	Severe: ponding.	Severe: flooding, ponding, shrink-swell.	Severe: flooding, ponding, shrink-swell.	Severe: flooding, ponding, shrink-swell.	Severe: low strength, ponding, shrink-swell.	Severe: excess salt, excess sulfur, ponding.
Corolla-----------	Severe: cutbanks cave, wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Moderate: flooding, wetness.	Severe: droughty.
48. Udorthents						

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 9.--SANITARY FACILITIES

(Some terms that describe restrictive soil features are defined in the "Glossary." See text for definitions of "slight," "poor," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
2-------------------- Albany	Severe: wetness.	Severe: seepage, wetness.	Severe: wetness, too sandy.	Severe: seepage, wetness.	Poor: too sandy, wetness.
3*. Beaches					
4*:					
Dirego--------------	Severe: flooding, wetness, poor filter.	Severe: seepage, flooding, excess humus.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage, wetness.	Poor: seepage, too sandy, wetness.
Bayvi---------------	Severe: flooding, wetness, poor filter.	Severe: seepage, flooding.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage, wetness.	Poor: seepage, too sandy, wetness.
5. Aquents					
6-------------------- Blanton	Moderate: wetness.	Severe: seepage.	Severe: too sandy.	Severe: seepage.	Poor: too sandy.
7*:					
Bohicket------------	Severe: flooding, ponding, percs slowly.	Severe: flooding, ponding.	Severe: flooding, ponding, too clayey.	Severe: flooding, ponding.	Poor: too clayey, hard to pack, ponding.
Tisonia-------------	Severe: flooding, wetness, percs slowly.	Severe: seepage, flooding, excess humus.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.
8-------------------- Ridgewood	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: too sandy, seepage.
9-------------------- Chaires	Severe: wetness, percs slowly.	Severe: seepage.	Severe: wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy, wetness.
10------------------- Corolla	Severe: wetness, poor filter.	Severe: seepage, flooding, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy.

See footnotes at end of table.

TABLE 9.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
11*:					
Dorovan	Severe: subsides, ponding.	Severe: excess humus, ponding.	Severe: seepage, ponding, excess humus.	Severe: seepage, ponding.	Poor: ponding, excess humus.
Pamlico	Severe: ponding, poor filter.	Severe: seepage, flooding, excess humus.	Severe: seepage, ponding, too sandy.	Severe: seepage, ponding.	Poor: seepage, too sandy, ponding.
12 Lynchburg	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
13 Hurricane	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: wetness, seepage, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy.
14 Harbeson	Severe: ponding, poor filter.	Severe: seepage, ponding.	Severe: ponding.	Severe: seepage, ponding.	Poor: seepage, ponding.
15 Ortega	Moderate**: wetness.	Severe: seepage.	Severe: seepage, wetness, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
16 Bonsai	Severe: flooding, wetness, poor filter.	Severe: seepage, flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage, wetness.	Poor: seepage, too sandy, wetness.
17 Kershaw	Slight**	Severe: seepage.	Severe: too sandy, seepage.	Severe: seepage.	Poor: seepage, too sandy.
18 Kershaw	Slight**	Severe: seepage, slope.	Severe: too sandy, seepage.	Severe: seepage.	Poor: seepage, too sandy.
19 Kureb	Slight**	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
20 Lynn Haven	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy, wetness.
21 Leefield	Severe: wetness, percs slowly.	Severe: seepage, wetness.	Severe: wetness.	Severe: seepage, wetness.	Fair: wetness.
22 Leon	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy, wetness.

See footnotes at end of table.

TABLE 9.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
23------------------ Maurepas	Severe: flooding, ponding, poor filter.	Severe: seepage, flooding, excess humus.	Severe: flooding, seepage, ponding.	Severe: flooding, seepage, ponding.	Severe: flooding, seepage, ponding.
24------------------ Mandarin	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: wetness, too sandy.	Severe: wetness, seepage.	Poor: seepage, too sandy.
25*:					
Chowan-------------	Severe: flooding, wetness, percs slowly.	Severe: seepage, flooding, excess humus.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage, wetness.	Poor: wetness, excess humus.
Brickyard----------	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, wetness.
Kenner-------------	Severe: subsides, flooding, ponding.	Severe: flooding, seepage, excess humus.	Severe: flooding, seepage, ponding.	Severe: flooding, seepage, ponding.	Poor: ponding, excess humus.
26------------------ Duckston	Severe: flooding, wetness, poor filter.	Severe: seepage, flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage, wetness.	Poor: seepage, too sandy, wetness.
27------------------ Pelham	Severe: wetness.	Severe: seepage, wetness.	Severe: wetness.	Severe: wetness, seepage.	Poor: wetness.
28------------------ Plummer	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: wetness, too sandy.	Severe: seepage, wetness.	Poor: too sandy, wetness.
29------------------ Resota	Moderate**: wetness.	Severe: seepage.	Severe: seepage, wetness.	Severe: seepage.	Poor: seepage, too sandy.
30------------------ Rutlege	Severe: ponding, poor filter.	Severe: seepage, ponding.	Severe: seepage, ponding, too sandy.	Severe: seepage, ponding.	Poor: too sandy, ponding.
31------------------ Rutlege	Severe: ponding, poor filter.	Severe: seepage, ponding.	Severe: seepage, ponding, too sandy.	Severe: seepage, ponding.	Poor: seepage, too sandy, ponding.
32------------------ Sapelo	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy, wetness.
33------------------ Scranton	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy, wetness.

See footnotes at end of table.

TABLE 9.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
34------------------ Surrency	Severe: flooding, wetness.	Severe: seepage, flooding, wetness.	Severe: flooding, wetness, too sandy.	Severe: flooding, seepage, wetness.	Poor: too sandy, wetness.
35------------------ Stilson	Severe: wetness.	Severe: seepage, wetness.	Moderate: wetness.	Severe: seepage.	Fair: wetness.
36*:					
Pickney------------	Severe: ponding, poor filter.	Severe: ponding, seepage.	Severe: ponding, seepage, too sandy.	Severe: ponding, seepage.	Poor: too sandy, seepage, ponding.
Pamlico------------	Severe: ponding, poor filter.	Severe: seepage, ponding, excess humus.	Severe: seepage, ponding, too sandy.	Severe: seepage, ponding.	Poor: seepage, too sandy, ponding.
37*:					
Tooles-------------	Severe: ponding, percs slowly, poor filter.	Severe: seepage, ponding.	Severe: depth to rock, ponding, too sandy.	Severe: seepage, ponding.	Poor: seepage, too sandy, ponding.
Meadowbrook--------	Severe: ponding, percs slowly, poor filter.	Severe: seepage, ponding.	Severe: ponding, too sandy.	Severe: seepage, ponding.	Poor: seepage, too sandy, ponding.
38------------------ Meadowbrook	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy, wetness.
39------------------ Scranton	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy, wetness.
40*:					
Newhan-------------	Severe**: poor filter, slope.	Severe: seepage, flooding, slope.	Severe: seepage, slope, too sandy.	Severe: seepage, slope.	Poor: seepage, too sandy, slope.
Corolla------------	Severe: wetness, poor filter.	Severe: seepage, flooding, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy.
41*:					
Pamlico------------	Severe: flooding, ponding, poor filter.	Severe: seepage, flooding, excess humus.	Severe: flooding, seepage, ponding.	Severe: flooding, seepage, ponding.	Poor: seepage, excess humus, ponding.

See footnotes at end of table.

TABLE 9.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
41*:					
Pickney	Severe: flooding, ponding, poor filter.	Severe: flooding, ponding, seepage.	Severe: flooding, seepage, ponding.	Severe: flooding, ponding, seepage.	Poor: too sandy, seepage, ponding.
42*:					
Meadowbrook	Severe: flooding, wetness, poor filter.	Severe: seepage, flooding, wetness.	Severe: flooding, wetness, too sandy.	Severe: flooding, seepage, wetness.	Poor: seepage, too sandy, wetness.
Meggett	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.
Tooles	Severe: flooding, wetness, percs slowly.	Severe: seepage, flooding, wetness.	Severe: flooding, depth to rock, wetness.	Severe: flooding, seepage, wetness.	Poor: seepage, too sandy, wetness.
43 Meadowbrook	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy, wetness.
44 Tooles	Severe: wetness, percs slowly, poor filter.	Severe: seepage, wetness.	Severe: depth to rock, wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy, wetness.
45*:					
Wehadkee	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness, thin layer.
Meggett	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.
46*:					
Duckston	Severe: flooding, wetness, poor filter.	Severe: seepage, flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage, wetness.	Poor: seepage, too sandy, wetness.
Rutlege	Severe: ponding, poor filter.	Severe: seepage, ponding.	Severe: seepage, ponding, too sandy.	Severe: seepage, ponding.	Poor: seepage, too sandy, ponding.
Corolla	Severe: wetness, poor filter.	Severe: seepage, flooding, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy.

See footnotes at end of table.

TABLE 9.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
47*:					
Duckston-----------	Severe: flooding, wetness, poor filter.	Severe: seepage, flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage, wetness.	Poor: seepage, too sandy, wetness.
Bohicket-----------	Severe: flooding, ponding, percs slowly.	Severe: flooding, ponding.	Severe: flooding, ponding, too clayey.	Severe: flooding, ponding.	Poor: too clayey, hard to pack, ponding.
Corolla------------	Severe: wetness, poor filter.	Severe: seepage, flooding, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy.
48. Udorthents					

* See description of the map unit for composition and behavior characteristics of the map unit.

** Ground-water contamination is a hazard in areas where there are many septic tanks because of the poor filtering capacity of the soil.

TABLE 10.--CONSTRUCTION MATERIALS

(Some terms that describe restrictive soil features are defined in the "Glossary." See text for definitions of "good," "fair," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
2: Albany	Fair: wetness.	Improbable: thin layer.	Improbable: excess fines.	Poor: too sandy.
3*. Beaches				
4*: Dirego	Poor: wetness.	Improbable: excess humus.	Improbable: too sandy.	Poor: excess humus, excess salt, wetness.
Bayvi	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, excess salt, wetness.
5. Aquents				
6: Blanton	Good	Probable	Improbable: too sandy.	Poor: too sandy.
7*: Bohicket	Poor: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt, wetness, too clayey.
Tisonia	Poor: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess humus, excess salt, wetness.
8: Ridgewood	Fair: wetness.	Probable	Improbable: too sandy.	Poor: too sandy.
9: Chaires	Poor: wetness.	Improbable: thin layer.	Improbable: too sandy.	Poor: too sandy, wetness.
10: Corolla	Fair: wetness.	Probable	Improbable: too sandy.	Poor: too sandy.
11*: Dorovan	Poor: low strength, wetness.	Improbable: excess humus.	Improbable: excess humus.	Poor: excess humus, wetness.
Pamlico	Poor: low strength, wetness.	Improbable: excess humus.	Improbable: too sandy, excess humus.	Poor: excess humus, wetness.

See footnote at end of table.

TABLE 10.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
12 Lynchburg	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
13 Hurricane	Fair: wetness.	Probable	Improbable: too sandy.	Poor: too sandy.
14 Harbeson	Poor: wetness.	Probable	Improbable: too sandy.	Poor: wetness.
15 Ortega	Good	Probable	Improbable: too sandy.	Poor: too sandy.
16 Bonsai	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, wetness.
17, 18 Kershaw	Good	Probable	Improbable: too sandy.	Poor: too sandy.
19 Kureb	Good	Probable	Improbable: too sandy.	Poor: too sandy.
20 Lynn Haven	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, wetness.
21 Leefield	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy.
22 Leon	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, wetness.
23 Maurepas	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess humus, wetness.
24 Mandarin	Fair: wetness.	Probable	Improbable: too sandy.	Poor: too sandy.
25*:				
Chowan	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Brickyard	Poor: shrink-swell, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
Kenner	Poor: wetness.	Improbable: excess humus.	Improbable: excess humus.	Poor: excess humus, wetness.
26 Duckston	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, wetness.
27 Pelham	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy, wetness.

See footnote at end of table.

TABLE 10.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
28 Plummer	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, wetness.
29 Resota	Good	Probable	Improbable: too sandy.	Poor: too sandy.
30 Rutlege	Poor: wetness.	Improbable: excess fines.	Improbable: too sandy.	Poor: wetness.
31 Rutlege	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, wetness.
32 Sapelo	Poor: wetness.	Improbable: excess fines.	Improbable: too sandy.	Poor: too sandy, wetness.
33 Scranton	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, wetness.
34 Surrency	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy, wetness.
35 Stilson	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy.
36*:				
Pickney	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, wetness.
Pamlico	Poor: low strength, wetness.	Improbable: excess humus.	Improbable: too sandy, excess humus.	Poor: excess humus, wetness.
37*:				
Tooles	Poor: wetness.	Improbable: thin layer.	Improbable: too sandy.	Poor: too sandy, wetness.
Meadowbrook	Poor: wetness.	Improbable: thin layer.	Improbable: too sandy.	Poor: too sandy, wetness.
38 Meadowbrook	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, wetness.
39 Scranton	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, wetness.
40*:				
Newhan	Fair: slope.	Probable	Improbable: too sandy.	Poor: too sandy, slope.
Corolla	Fair: wetness.	Probable	Improbable: too sandy.	Poor: too sandy.

See footnote at end of table.

TABLE 10.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
41*:				
Pamlico	Poor: low strength, wetness.	Improbable: excess humus.	Improbable: too sandy, excess humus.	Poor: excess humus, wetness.
Pickney	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, wetness.
42*:				
Meadowbrook	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, wetness.
Meggett	Poor: wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
Tooles	Poor: wetness.	Improbable: thin layer.	Improbable: too sandy.	Poor: too sandy, wetness.
43 Meadowbrook	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, wetness.
44 Tooles	Poor: wetness.	Improbable: thin layer.	Improbable: too sandy.	Poor: too sandy, wetness.
45*:				
Wehadkee	Poor: wetness, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Meggett	Poor: wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
46*:				
Duckston	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, wetness.
Rutlege	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, wetness.
Corolla	Fair: wetness.	Probable	Improbable: too sandy.	Poor: too sandy.
47*:				
Duckston	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, wetness.
Bohicket	Poor: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt, wetness, too clayey.

See footnote at end of table.

TABLE 10.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
47*:				
Corolla	Fair: wetness.	Probable	Improbable: too sandy.	Poor: too sandy.
48. Udorthents				

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 11.--WATER MANAGEMENT

(Some terms that describe restrictive soil features are defined in the "Glossary." See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not evaluated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions
2 Albany	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, too sandy.
3*. Beaches						
4*:						
Dirego	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: salty water, cutbanks cave.	Flooding, subsides, cutbanks cave.	---	---
Bayvi	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: salty water, cutbanks cave.	Flooding, cutbanks cave, excess salt.	---	---
5. Aquents						
6 Blanton	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water	Droughty, fast intake.	Too sandy, soil blowing.
7*:						
Bohicket	Slight	Severe: hard to pack, ponding, excess salt.	Severe: slow refill, salty water.	Ponding, percs slowly, flooding.	---	---
Tisonia	Slight	Severe: hard to pack, wetness, excess salt.	Severe: slow refill, salty water.	Percs slowly, flooding, subsides.	---	---
8 Ridgewood	Severe: seepage.	Severe: seepage, piping.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, too sandy, soil blowing.
9 Chaires	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: slow refill, cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, too sandy, soil blowing.
10 Corolla	Severe: seepage.	Severe: seepage, wetness, piping.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, too sandy, soil blowing.

See footnote at end of table.

TABLE 11.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions
11*:						
Dorovan	Moderate: seepage.	Severe: excess humus, ponding.	Severe: cutbanks cave.	Ponding, subsides.	---	---
Pamlico	Severe: seepage.	Severe: seepage, piping, ponding.	Severe: cutbanks cave.	Ponding, subsides, cutbanks cave.	---	---
12 Lynchburg	Moderate: seepage.	Severe: piping, wetness.	Moderate: slow refill.	Favorable	Wetness, fast intake.	Wetness.
13 Hurricane	Severe: seepage.	Severe: seepage, piping.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, too sandy, soil blowing.
14 Harbeson	Severe: seepage.	Severe: seepage, piping, ponding.	Severe: slow refill, cutbanks cave.	Ponding, subsides, cutbanks cave.	Ponding, fast intake.	Ponding, too sandy, soil blowing.
15 Ortega	Severe: seepage.	Severe: seepage, piping.	Severe: cutbanks cave.	Deep to water	Droughty, fast intake.	Too sandy, soil blowing.
16 Bonsai	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Flooding, subsides, cutbanks cave.	Wetness, droughty, fast intake.	Wetness, too sandy, soil blowing.
17 Kershaw	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water	Droughty, fast intake, slope.	Too sandy, soil blowing.
18 Kershaw	Severe: seepage, slope.	Severe: seepage, piping.	Severe: no water.	Deep to water	Droughty, fast intake, slope.	Slope, too sandy, soil blowing.
19 Kureb	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water	Droughty, fast intake, slope.	Too sandy, soil blowing.
20 Lynn Haven	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, too sandy, soil blowing.
21 Leefield	Moderate: seepage.	Severe: piping, wetness.	Severe: slow refill, cutbanks cave.	Favorable	Wetness, droughty, fast intake.	Wetness.
22 Leon	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, too sandy, soil blowing.

See footnote at end of table.

TABLE 11.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions
23: Maurepas	Severe: seepage.	Severe: excess humus, ponding.	Slight	Ponding, flooding, subsides.	---	---
24: Mandarin	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Too sandy, soil blowing, wetness.
25*:						
Chowan	Severe: seepage.	Severe: excess humus, wetness.	Severe: slow refill.	Flooding, subsides.	Wetness, flooding.	Wetness.
Brickyard	Moderate: seepage.	Severe: wetness.	Severe: slow refill.	Percs slowly, flooding.	Severe: wetness, slow intake, percs slowly.	Severe: wetness, percs slowly.
Kenner	Severe: seepage.	Severe: excess humus, ponding.	Severe: slow refill.	Ponding, percs slowly, flooding.	Flooding, percs slowly.	Wetness.
26: Duckston	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Flooding, cutbanks cave.	Wetness, droughty, fast intake.	Wetness, too sandy, soil blowing.
27: Pelham	Severe: seepage.	Severe: piping, wetness.	Severe: cutbanks cave.	Favorable	Fast intake, wetness.	Wetness, soil blowing.
28: Plummer	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, too sandy.
29: Resota	Severe: seepage.	Severe: seepage, piping.	Severe: cutbanks cave.	Deep to water	Droughty, fast intake.	Too sandy, soil blowing.
30: Rutlege	Severe: seepage.	Severe: seepage, piping, ponding.	Severe: cutbanks cave.	Ponding, cutbanks cave.	Ponding	Too sandy, ponding.
31: Rutlege	Severe: seepage.	Severe: seepage, piping, ponding.	Severe: cutbanks cave.	Ponding, cutbanks cave.	Ponding, droughty. fast intake.	Ponding, too sandy.
32: Sapelo	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, too sandy.

See footnote at end of table.

TABLE 11.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions
33---------------- Scranton	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, too sandy, soil blowing.
34---------------- Surrency	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Flooding, cutbanks cave.	Droughty, fast intake, wetness.	Too sandy, wetness.
35---------------- Stilson	Moderate: seepage.	Severe: piping.	Severe: no water.	Favorable-------	Wetness, droughty.	Wetness.
36*:						
Pickney----------	Severe: seepage.	Severe: seepage, piping, ponding.	Severe: cutbanks cave.	Cutbanks cave, ponding.	---	---
Pamlico----------	Severe: seepage.	Severe: seepage, piping, ponding.	Severe: cutbanks cave.	Ponding, subsides, cutbanks cave.	---	---
37*:						
Tooles-----------	Severe: seepage.	Severe: seepage, piping, ponding.	Severe: slow refill, cutbanks cave.	Ponding, percs slowly, cutbanks cave.	Ponding, droughty, fast intake.	Ponding, too sandy, soil blowing.
Meadowbrook------	Severe: seepage.	Severe: seepage, piping, ponding.	Severe: slow refill, cutbanks cave.	Ponding, cutbanks cave.	Ponding, droughty, fast intake.	Ponding, too sandy, soil blowing.
38---------------- Meadowbrook	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, too sandy, soil blowing.
39---------------- Scranton	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, too sandy, soil blowing.
40*:						
Newhan-----------	Severe: seepage, slope.	Severe: seepage, piping.	Severe: no water.	Deep to water	Droughty, fast intake, slope.	Slope, too sandy.
Corolla----------	Severe: seepage.	Severe: seepage, wetness, piping.	Severe: cutbanks cave.	Slope, cutbanks cave.	Slope, wetness, droughty.	Wetness, too sandy, soil blowing.
41*:						
Pamlico----------	Severe: seepage.	Severe: seepage, piping, ponding.	Severe: cutbanks cave.	Ponding, flooding, subsides.	---	---

See footnote at end of table.

TABLE 11.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions
41*:						
Pickney	Severe: seepage.	Severe: seepage, piping, ponding.	Severe: cutbanks cave.	Cutbanks cave, flooding, ponding.	---	---
42*:						
Meadowbrook	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Flooding, cutbanks cave.	Wetness, droughty, fast intake.	Wetness, too sandy, soil blowing.
Meggett	Moderate: seepage.	Severe: hard to pack, wetness.	Severe: slow refill.	Percs slowly, flooding.	Wetness, percs slowly.	Wetness, percs slowly.
Tooles	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: slow refill, cutbanks cave.	Percs slowly, flooding, cutbanks cave.	Wetness, droughty, fast intake.	Wetness, too sandy, soil blowing.
43 Meadowbrook	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, too sandy, soil blowing.
44 Tooles	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: slow refill, cutbanks cave.	Percs slowly, cutbanks cave.	Wetness, droughty, fast intake.	Wetness, too sandy, soil blowing.
45*:						
Wehadkee	Moderate: seepage.	Severe: wetness, piping.	Moderate: slow refill.	Flooding	Wetness, soil blowing, flooding.	Wetness, soil blowing.
Meggett	Moderate: seepage.	Severe: hard to pack, wetness.	Severe: slow refill.	Percs slowly, flooding.	Wetness, percs slowly.	Wetness, percs slowly.
46*:						
Duckston	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Flooding, cutbanks cave.	Wetness, droughty, fast intake.	Wetness, too sandy, soil blowing.
Rutlege	Severe: seepage.	Severe: seepage, piping, ponding.	Severe: cutbanks cave.	Ponding, cutbanks cave.	Ponding, droughty, fast intake.	Ponding, too sandy.
Corolla	Severe: seepage.	Severe: seepage, wetness, piping.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, too sandy, soil blowing.

See footnote at end of table.

TABLE 11.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions
47*:						
Duckston	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Flooding, cutbanks cave.	Wetness, droughty, fast intake.	Wetness, too sandy, soil blowing.
Bohicket	Slight	Severe: hard to pack, ponding, excess salt.	Severe: slow refill, salty water.	Ponding, percs slowly, flooding.	---	---
Corolla	Severe: seepage.	Severe: seepage, wetness, piping.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, too sandy, soil blowing.
48. Udorthents						

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 12.--ENGINEERING INDEX PROPERTIES

(The symbol < means less than; > means more than. Absence of an entry indicates that data were not estimated)

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	In								Pct	
2. Albany	0-50	Fine sand	SM, SP-SM	A-2	100	100	75-90	10-20	---	NP
	50-62	Sandy loam	SM	A-2	100	100	75-92	22-30	---	NP
	62-80	Sandy clay loam, sandy loam, fine sandy loam.	SC, SM, SM-SC	A-2, A-4, A-6	97-100	95-100	70-100	20-50	<40	NP-17
3*. Beaches										
4*: Dirego	0-35	Muck	PT	A-8	---	---	---	---	---	---
	35-80	Fine sand, loamy fine sand, fine sandy loam.	SM, SP-SM	A-3, A-2-4	100	100	80-100	6-13	---	NP
Bayvi	0-8	Mucky sand	SM, SP-SM	A-3, A-2	100	100	80-100	5-20	---	NP
	8-26	Mucky loamy sand, mucky sand, sand.	SM, SP-SM	A-3, A-2-4	100	100	80-100	5-20	---	NP
	26-80	Loamy sand, fine sand, sand.	SM, SP-SM	A-3, A-2-4	100	100	80-100	5-20	---	NP
5. Aquents										
6. Blanton	0-72	Fine sand	SP-SM, SM	A-3, A-2-4	100	90-100	65-100	5-20	---	NP
	72-80	Sandy clay loam, sandy loam, sandy clay.	SC, SM-SC, SM	A-4, A-2-4, A-2-6, A-6	100	95-100	69-100	25-50	12-45	3-22
7*: Bohicket	0-23	Silty clay	CH, MH	A-7	100	99-100	90-100	80-100	60-100	15-60
	23-80	Silty clay, clay, sandy clay.	CH, MH	A-7	100	99-100	80-100	70-95	50-100	16-60
Tisonia	0-4	Mucky peat	PT	A-8	---	---	---	---	---	---
	4-26	Muck	PT	A-8	---	---	---	---	---	---
	26-66	Clay	CH	A-7	100	100	95-100	90-100	80-95	50-60
	66-80	Variable	---	---	---	---	---	---	---	---
8. Ridgewood	0-5	Sand	SP-SM	A-3, A-2-4	100	100	90-100	5-12	---	NP
	5-80	Fine sand, sand	SP-SM, SP	A-3, A-2-4	100	100	90-100	2-12	---	NP
9. Chaires	0-14	Sand	SP, SP-SM	A-3	100	100	80-100	2-12	---	NP
	14-33	Sand, fine sand, loamy fine sand.	SP-SM, SM	A-3, A-2-4	100	100	85-100	5-20	---	NP
	33-80	Sandy loam, fine sandy loam, sandy clay loam.	SM, SM-SC, SC	A-2-4, A-2-6	100	100	85-100	20-35	<40	NP-20

See footnote at end of table.

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In								Pct	
10--------------- Corolla	0-80	Sand-------------	SW, SP-SM, SP	A-2, A-3	80-100	75-100	60-95	1-12	---	NP
11*:										
Dorovan----------	0-5	Muck-------------	PT	---	---	---	---	---	---	---
	5-80	Muck-------------	PT	---	---	---	---	---	---	---
Pamlico----------	0-38	Muck-------------	PT	---	---	---	---	---	---	---
	38-80	Sand, fine sand, loamy sand.	SM, SP-SM	A-2, A-3	100	100	70-95	5-20	---	NP
12--------------- Lynchburg	0-13	Loamy fine sand	SM, SP-SM	A-2, A-4	92-100	90-100	60-100	12-40	<25	NP-4
	13-80	Sandy clay loam, sandy loam, clay loam.	SM-SC, SC, CL, CL-ML	A-2, A-4, A-6	92-100	90-100	70-100	25-67	15-40	4-18
13--------------- Hurricane	0-7	Sand-------------	SP, SP-SM	A-3	100	100	78-100	4-8	---	NP
	7-55	Sand, fine sand	SP, SP-SM	A-3	100	100	78-100	4-8	---	NP
	55-76	Sand, fine sand, loamy sand.	SP-SM, SM	A-3, A-2-4	100	100	80-100	5-15	---	NP
	76-80	Sand, fine sand	SP, SP-SM, SM	A-3, A-2-4	100	100	90-100	4-15	---	NP
14--------------- Harbeson	0-39	Mucky loamy sand	SM, SP-SM	A-2	100	98-100	75-95	10-25	---	NP
	39-66	Loamy sand, sand	SM, SP-SM	A-3, A-2-4	100	98-100	70-95	5-25	---	NP
	66-80	Sandy loam, fine sandy loam, sandy clay loam.	SM, SM-SC, SC	A-2-4, A-2-6	100	98-100	75-100	15-45	<40	3-20
15--------------- Ortega	0-5	Fine sand--------	SP, SP-SM	A-3	100	100	90-100	3-8	---	NP
	5-80	Fine sand, sand	SP, SP-SM	A-3	100	100	90-100	2-7	---	NP
16--------------- Bonsai	0-3	Mucky fine sand	SM, SP-SM	A-2	100	98-100	70-95	10-30	---	NP
	3-46	Sand, fine sand, loamy fine sand.	SP, SM, SP-SM	A-3, A-2-4	100	98-100	65-95	5-30	---	NP
	46-65	Sandy loam, fine sandy loam, fine sand.	SM, SM-SC	A-2-4, A-2-6	100	98-100	75-95	10-40	<30	NP-10
	65-80	Sand, sandy loam, sandy clay loam.	SP-SM, SM-SC	A-2-4, A-2-6	100	98-100	75-95	10-45	<35	NP-20
17, 18----------- Kershaw	0-80	Sand-------------	SP, SP-SM, SW	A-2, A-3	98-100	98-100	50-100	1-7	---	NP
19--------------- Kureb	0-80	Fine sand--------	SP, SP-SM	A-3	100	100	60-100	0-7	---	NP
20--------------- Lynn Haven	0-28	Sand-------------	SP, SP-SM, SM	A-3, A-2-4	100	100	80-100	2-14	---	NP
	28-50	Sand, fine sand, loamy sand.	SM, SP-SM	A-3, A-2-4	100	100	70-100	5-20	---	NP
	50-80	Sand, fine sand	SP, SP-SM	A-3, A-2-4	100	100	80-100	2-12	---	NP
21--------------- Leefield	0-31	Sand-------------	SM, SW-SM, SP-SM	A-2	98-100	95-100	65-95	10-20	---	NP
	31-80	Sandy loam, sandy clay loam.	SC, SM, SM-SC	A-2, A-4, A-6	95-100	93-100	65-95	20-40	<40	NP-16

See footnote at end of table.

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plas- ticity index
	In								Pct	
22--------------- Leon	0-22	Sand-------------	SP, SP-SM	A-3, A-2-4	100	100	80-100	2-12	---	NP
	22-72	Sand, fine sand, loamy sand.	SM, SP-SM, SP	A-3, A-2-4	100	100	80-100	3-20	---	NP
	72-80	Sand, fine sand	SP, SP-SM	A-3, A-2-4	100	100	80-100	2-12	---	NP
23--------------- Maurepas	0-80	Muck-------------	PT	A-8	---	---	---	---	---	---
24--------------- Mandarin	0-25	Fine sand--------	SP, SP-SM	A-3	100	100	90-100	2-10	---	NP
	25-34	Fine sand, sand, loamy fine sand.	SP-SM, SM	A-3, A-2-4	100	100	90-100	5-15	---	NP
	34-80	Fine sand, sand	SP, SP-SM	A-3	100	100	90-100	2-7	---	NP
25*:										
Chowan----------	0-5	Silty clay loam	CL-ML, ML, MH	A-7-5, A-4, A-6	100	100	90-100	85-95	22-60	4-24
	5-37	Loam, silt loam, silty clay loam.	CL, MH, ML	A-7-5, A-4, A-6	100	100	90-100	85-96	22-62	6-30
	37-80	Sapric material	PT	---	---	---	---	---	---	NP
Brickyard-------	0-4	Silty clay-------	CL, CH, MH	A-7	100	98-100	95-100	80-100	41-70	15-40
	4-45	Silty clay, silty clay loam, clay.	CL, CH, MH	A-7	100	98-100	95-100	85-100	41-75	15-45
	45-80	Silty clay, silty clay loam, clay loam.	CL, CH, MH, OH	A-6, A-7	100	98-100	90-100	70-95	30-70	11-40
Kenner----------	0-12	Muck-------------	PT	A-8	---	---	---	---	---	---
	12-23	Clay, silty clay, mucky clay.	MH, OH	A-7-5	100	100	100	95-100	70-100	30-55
	23-70	Muck-------------	PT	A-8	---	---	---	---	---	---
	70-80	Clay, silty clay, mucky clay.	MH, OH	A-7-5	100	100	100	95-100	70-100	30-55
26--------------- Duckston	0-4	Sand-------------	SP-SM, SP	A-2, A-3	100	95-100	60-75	3-12	---	NP
	4-80	Sand, fine sand	SP-SM, SP	A-2, A-3	100	95-100	60-75	3-12	---	NP
27--------------- Pelham	0-37	Fine sand--------	SM, SP-SM	A-2	100	95-100	75-100	10-25	---	NP
	37-80	Sandy clay loam, sandy loam, fine sandy loam.	SM, SC, SM-SC	A-2, A-4, A-6	100	95-100	65-100	27-50	15-30	2-12
28--------------- Plummer	0-58	Fine sand--------	SM, SP-SM	A-2-4, A-3	100	100	75-90	5-20	---	NP
	58-80	Sandy loam, sandy clay loam, fine sandy loam.	SM, SC, SM-SC	A-2-4, A-4	100	97-100	76-96	20-48	<30	NP-10
29--------------- Resota	0-80	Fine sand--------	SP, SM, SP-SM	A-3, A-2-4	100	100	85-99	1-15	---	NP
30--------------- Rutlege	0-11	Loamy fine sand	SM, SP-SM	A-2, A-3	95-100	95-100	50-80	5-35	<25	NP
	11-80	Sand, loamy sand, loamy fine sand.	SP-SM, SP, SM	A-2, A-3	95-100	95-100	50-80	2-25	<20	NP
31--------------- Rutlege	0-13	Fine sand--------	SP-SM	A-3	95-100	95-100	70-100	5-10	---	NP
	13-80	Sand, loamy sand, loamy fine sand.	SP-SM, SP, SM	A-2, A-3	95-100	95-100	50-80	2-25	<20	NP

See footnote at end of table.

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In								Pct	
32---------------Sapelo	0-14	Fine sand--------	SM, SP, SP-SM	A-2, A-3	100	100	85-100	4-20	---	NP
	14-26	Fine sand, sand, loamy fine sand.	SM, SP-SM	A-2, A-3	100	100	80-100	8-20	---	NP
	26-56	Fine sand, sand	SM, SP, SP-SM	A-2, A-3	100	100	75-100	4-20	---	NP
	56-80	Sandy loam, sandy clay loam, fine sandy loam.	SM, SC, SM-SC	A-2, A-4, A-6	100	100	80-100	20-50	<40	NP-20
33---------------Scranton	0-7	Fine sand--------	SP-SM, SM	A-2, A-3, A-1	100	95-100	40-90	5-20	---	NP
	7-80	Loamy sand, sand, fine sand.	SP-SM, SM	A-2, A-3, A-1	100	95-100	40-95	5-25	---	NP
34---------------Surrency	0-12	Fine sand--------	SM, SP-SM	A-2	100	95-100	50-100	10-26	---	NP
	12-34	Loamy sand, sand, fine sand.	SP-SM, SM	A-2-4	100	95-100	50-100	10-26	---	NP
	34-58	Sandy loam, sandy clay loam.	SM, SM-SC, SC	A-2	100	95-100	75-100	22-35	<30	NP-10
	58-80	Sandy clay loam	SM, SC, SM-SC	A-2, A-4, A-6	100	95-100	80-100	30-44	<35	NP-15
35---------------Stilson	0-32	Fine sand--------	SM	A-2	94-100	94-100	74-92	15-24	---	NP
	32-80	Sandy loam, sandy clay loam.	SM, SC, SM-SC	A-2, A-6, A-4	89-100	86-100	77-94	25-41	<29	NP-13
36*:										
Pickney---------	0-41	Sand-------------	SM, SP-SM	A-2	100	100	50-80	5-25	---	NP
	41-80	Loamy fine sand, loamy sand, fine sand.	SP, SP-SM, SM	A-2, A-3	100	100	50-90	3-25	---	NP
Pamlico---------	0-27	Muck-------------	PT	---	---	---	---	---	---	---
	27-80	Sand-------------	SM, SP-SM	A-2, A-3	100	100	70-95	5-20	---	NP
37*:										
Tooles----------	0-34	Fine sand--------	SP-SM, SM	A-3, A-2-4	100	100	85-95	5-15	---	NP
	34-47	Sandy clay loam, clay loam.	SC, CL	A-6	100	100	85-95	36-55	25-30	11-15
	47	Unweathered bedrock.	---	---	---	---	---	---	---	---
Meadowbrook-----	0-5	Sand-------------	SP, SP-SM	A-3	100	95-100	70-95	2-10	---	NP
	5-48	Sand, fine sand	SP, SP-SM	A-3	100	95-100	70-95	2-10	---	NP
	48-70	Loamy sand, sandy loam, fine sandy loam.	SM, SM-SC	A-2-4	100	95-100	70-99	15-30	<25	NP-7
	70-80	Sandy loam, fine sandy loam, sandy clay loam.	SM, SM-SC, SC	A-2-4, A-2-6	100	95-100	70-99	13-35	<35	NP-10
38---------------Meadowbrook	0-4	Sand-------------	SP, SP-SM	A-3	100	95-100	70-95	2-10	---	NP
	4-48	Sand, fine sand	SP, SP-SM	A-3	100	95-100	70-95	2-10	---	NP
	48-64	Loamy sand, sandy loam, fine sandy loam.	SM, SM-SC	A-2-4	100	95-100	70-99	15-30	<25	NP-7
	64-80	Sandy loam, fine sandy loam, sandy clay loam.	SM, SM-SC, SC	A-2-4, A-2-6	100	95-100	70-99	13-35	<35	NP-20

See footnote at end of table.

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	4	10	40	200		
	In								Pct	
39----------------- Scranton	0-8	Sand-------------	SP-SM, SM	A-2, A-3, A-1	100	95-100	40-90	5-20	---	NP
	8-80	Loamy sand, sand, fine sand.	SP-SM, SM	A-2, A-3, A-1	100	95-100	40-95	5-25	---	NP
40*:										
Newhan----------	0-80	Sand-------------	SP, SP-SM	A-3	95-100	95-100	60-75	0-5	---	NP
Corolla---------	0-80	Sand-------------	SW, SP-SM, SP	A-2, A-3	80-100	75-100	60-95	1-12	---	NP
41*:										
Pamlico---------	0-46	Muck-------------	PT	---	---	---	---	---	---	---
	46-80	Loamy sand, sand, loamy fine sand.	SM, SP-SM	A-2, A-3	100	100	70-95	5-20	---	NP
Pickney---------	0-35	Fine sand--------	SP-SM, SM	A-2	100	100	50-90	10-25	---	NP
	35-80	Loamy fine sand, loamy sand, fine sand.	SP, SP-SM, SM	A-2, A-3	100	100	50-90	3-25	---	NP
42*:										
Meadowbrook-----	0-5	Fine sand--------	SP, SP-SM	A-3	100	95-100	70-95	2-10	---	NP
	5-42	Sand, fine sand	SP, SP-SM	A-3	100	95-100	70-95	2-10	---	NP
	42-80	Loamy sand, sandy loam, fine sandy loam.	SM, SM-SC	A-2-4	100	95-100	70-99	15-30	<25	NP-7
Meggett---------	0-12	Fine sandy loam	SM	A-2, A-4	100	95-100	50-85	15-55	---	NP
	12-20	Clay, sandy clay, clay loam.	CH, MH, CL	A-6, A-7	100	90-100	75-100	51-90	30-60	11-30
	20-80	Sandy clay, sandy clay loam, clay.	SC, SM, ML, MH	A-4, A-6, A-7	90-100	65-100	50-100	36-90	30-60	7-25
Tooles----------	0-21	Fine sand--------	SP-SM, SM	A-3, A-2-4	100	100	85-95	5-15	---	NP
	21-59	Sandy clay loam, clay loam.	SC, CL	A-6	100	100	85-95	36-55	25-30	11-15
	59	Unweathered bedrock.	---	---	---	---	---	---	---	---
43----------------- Meadowbrook	0-4	Sand-------------	SP, SP-SM	A-3	100	95-100	70-95	2-10	---	NP
	4-57	Sand, fine sand	SP, SP-SM	A-3	100	95-100	70-95	2-10	---	NP
	57-65	Loamy sand, sandy loam, fine sandy loam.	SM, SM-SC	A-2-4	100	95-100	70-99	15-30	<25	NP-7
	65-80	Sandy loam, fine sandy loam, sandy clay loam.	SM, SM-SC, SC	A-2-4, A-2-6	100	95-100	70-99	13-35	<35	NP-20
44----------------- Tooles	0-27	Sand-------------	SP-SM, SM	A-3, A-2-4	100	100	85-95	5-15	---	NP
	27-50	Sandy clay loam, clay loam.	SC, CL	A-6	100	100	85-95	36-55	25-30	11-15
	50	Unweathered bedrock.	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 12.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	4	10	40	200		
	In								Pct	
45*:										
Wehadkee	0-3	Loam	SM, SC, SM-SC	A-2, A-4	100	95-100	60-90	30-50	<30	NP-10
	3-40	Silt loam, silty clay loam, very fine sandy loam.	CL, CL-ML, ML, SC	A-6, A-7, A-4	100	99-100	85-100	45-98	20-58	6-25
	40-80	Variable	---	---	---	---	---	---	---	---
Meggett	0-18	Loam	ML, CL-ML, CL	A-4, A-6	100	95-100	85-100	55-80	20-40	5-15
	18-30	Clay, sandy clay, clay loam.	CH, MH, CL	A-6, A-7	100	90-100	75-100	51-90	30-60	11-30
	30-80	Clay, sandy clay, clay loam.	CH, MH, CL	A-6, A-7	100	90-100	75-100	51-90	35-65	11-30
46*:										
Duckston	0-2	Fine sand	SP-SM, SP	A-2, A-3	100	95-100	60-75	3-12	---	NP
	2-80	Sand, fine sand	SP-SM, SP	A-2, A-3	100	95-100	60-75	3-12	---	NP
Rutlege	0-10	Fine sand	SP-SM	A-3	95-100	95-100	70-100	5-10	---	NP
	10-80	Sand, loamy sand, loamy fine sand.	SP-SM, SP, SM	A-2, A-3	95-100	95-100	50-80	2-25	<20	NP
Corolla	0-80	Sand	SW, SP-SM, SP	A-2, A-3	80-100	75-100	60-95	1-12	---	NP
47*:										
Duckston	0-4	Fine sand	SP-SM, SP	A-2, A-3	100	95-100	60-75	3-12	---	NP
	4-80	Sand, fine sand	SP-SM, SP	A-2, A-3	100	95-100	60-75	3-12	---	NP
Bohicket	0-5	Clay	CH, MH	A-7	100	99-100	90-100	80-100	60-100	15-60
	5-39	Silty clay, clay, sandy clay.	CH, MH	A-7	100	99-100	80-100	70-95	50-100	16-60
	39-80	Variable	---	---	---	---	---	---	---	---
Corolla	0-80	Fine sand	SW, SP-SM, SP	A-2, A-3	80-100	75-100	60-95	1-12	---	NP
48. Udorthents										

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 13.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS

(The symbol < means less than; > means more than. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Organic matter" apply only to the surface layer. Absence of an entry indicates that data were not available or were not estimated)

Soil name and map symbol	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Soil reaction	Salinity	Shrink- swell potential	Erosion factors K	Erosion factors T	Wind erodi- bility group	Organic matter
	In	Pct	g/cc	In/hr	In/in	pH	mmhos/cm					Pct
2----------------- Albany	0-50	1-10	1.40-1.55	6.0-20	0.02-0.04	3.6-6.5	<2	Low--------	0.10	5	1	1-2
	50-62	1-20	1.50-1.70	2.0-6.0	0.08-0.10	4.5-6.0	<2	Low--------	0.20			
	62-80	13-35	1.55-1.65	0.6-2.0	0.10-0.16	4.5-6.0	<2	Low--------	0.24			
3*. Beaches												
4*:												
Dirego-----------	0-35	---	0.10-0.35	6.0-20	0.01-0.03	6.1-7.3	>16	----------	----	---	2	25-60
	35-80	2-12	1.50-1.60	6.0-20	0.01-0.03	5.6-6.5	2-16	Low--------	----			
Bayvi------------	0-8	3-9	1.20-1.55	2.0-6.0	0.01-0.03	6.1-8.4	>4	Low--------	0.10	5	2	8-20
	8-26	3-9	1.20-1.55	2.0-6.0	0.01-0.03	6.1-8.4	>4	Low--------	0.10			
	26-80	3-9	1.50-1.60	6.0-20	0.01-0.03	6.1-8.4	4-16	Low--------	0.10			
5. Aquents												
6----------------- Blanton	0-72	1-7	1.30-1.60	6.0-20	0.03-0.07	4.5-6.0	<2	Low--------	0.10	5	2	.5-1
	72-80	12-40	1.60-1.70	0.6-2.0	0.10-0.15	4.5-5.5	<2	Low--------	0.20			
7*:												
Bohicket---------	0-23	30-60	1.20-1.40	0.06-0.2	0.14-0.18	6.1-8.4	>8	High-------	0.28	5	4	5-25
	23-80	35-60	1.30-1.60	<0.06	0.12-0.16	6.1-8.4	>8	High-------	0.24			
Tisonia----------	0-26	---	0.20-0.50	6.0-20	0.25-0.35	6.1-7.8	>16	Low--------	----	---	2	40-65
	26-66	60-85	1.05-1.40	<0.06	0.15-0.20	6.1-7.8	>16	High-------	0.20			
	66-80	---	---	---	---	---	---	----------	----			
8----------------- Ridgewood	0-5	1-3	1.35-1.55	6.0-20	0.05-0.10	4.5-7.3	<2	Low--------	0.10	5	2	<1
	5-80	0-5	1.35-1.65	6.0-20	0.03-0.08	4.5-7.3	<2	Low--------	0.10			
9----------------- Chaires	0-14	<3	1.35-1.45	6.0-20	0.02-0.05	3.6-5.5	<2	Low--------	0.10	5	2	1-3
	14-24	2-13	1.45-1.60	0.6-2.0	0.05-0.10	3.6-5.5	<2	Low--------	0.20			
	24-33	<5	1.40-1.60	6.0-20	0.02-0.05	4.5-6.5	<2	Low--------	0.10			
	33-80	15-35	1.60-1.70	0.2-0.6	0.10-0.15	4.5-7.3	<2	Low--------	0.24			
10---------------- Corolla	0-80	0-3	1.60-1.70	>20	0.01-0.03	5.6-7.8	<2	Low--------	0.10	5	1	<.5
11*:												
Dorovan----------	0-5	---	0.25-0.40	0.6-2.0	0.20-0.25	3.6-4.4	<2	----------	----	---	2	20-80
	5-80	---	0.35-0.55	0.6-2.0	0.20-0.25	3.6-4.4	<2	----------	----			
Pamlico----------	0-38	---	0.20-0.65	0.6-6.0	0.24-0.40	3.6-5.5	<2	Low--------	----	---	2	20-80
	38-80	5-10	1.60-1.75	6.0-20	0.02-0.10	3.6-5.5	<2	Low--------	0.10			
12---------------- Lynchburg	0-13	2-10	1.40-1.70	6.0-20	0.07-0.10	3.6-6.0	<2	Low--------	0.15	5	2	.5-5
	13-80	18-35	1.30-1.50	0.6-2.0	0.12-0.16	3.6-5.5	<2	Low--------	0.20			
13---------------- Hurricane	0-7	1-4	1.40-1.60	>6.0	0.03-0.07	3.6-6.0	<2	Low--------	0.10	5	2	<2
	7-55	1-4	1.40-1.60	>6.0	0.03-0.07	3.6-6.0	<2	Low--------	0.10			
	55-76	2-8	1.55-1.65	2.0-6.0	0.10-0.15	3.6-6.0	<2	Low--------	0.15			
	76-80	1-4	1.40-1.60	2.0-20	0.03-0.10	3.6-6.0	<2	Low--------	0.10			

See footnote at end of table.

TABLE 13.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodibility group	Organic matter
	In	Pct	g/cc	In/hr	In/in	pH	mmhos/cm					Pct
14---------------- Harbeson	0-39	3-9	0.80-1.30	2.0-20	0.20-0.25	4.5-7.8	<2	Low--------	0.10	5	2	9-20
	39-66	3-9	1.50-1.75	6.0-20	0.03-0.10	4.5-7.8	<2	Low--------	0.10			
	66-80	10-30	1.60-1.85	0.2-2.0	0.10-0.20	5.6-8.4	<2	Moderate	0.17			
15---------------- Ortega	0-5	1-3	1.20-1.45	6.0-20	0.05-0.08	3.6-6.5	<2	Low--------	0.10	5	2	1-2
	5-80	1-3	1.35-1.60	6.0-20	0.03-0.06	3.6-6.5	<2	Low--------	0.10			
16---------------- Bonsai	0-3	1-12	0.80-1.30	2.0-20	0.20-0.25	4.5-7.3	<2	Low--------	0.10	5	2	9-20
	3-46	3-12	1.20-1.50	2.0-20	0.05-0.15	4.5-8.4	<2	Low--------	0.10			
	46-65	3-20	1.20-1.75	2.0-6.0	0.05-0.20	5.6-8.4	<2	Low--------	0.15			
	65-80	3-25	1.35-1.75	2.0-6.0	0.05-0.20	5.6-8.4	<2	Low--------	0.17			
17, 18----------- Kershaw	0-80	<5	1.35-1.60	>20	0.02-0.05	4.5-6.0	<2	Very low	0.10	5	1	<1
19---------------- Kureb	0-80	0-3	1.60-1.80	6.0-20	<0.05	3.6-7.3	<2	Low--------	0.10	5	1	<2
20---------------- Lynn Haven	0-28	1-4	1.35-1.60	6.0-20	0.05-0.10	3.6-5.5	<2	Low--------	0.10	5	2	2-4
	28-50	2-8	1.40-1.55	0.6-6.0	0.10-0.20	3.6-5.5	<2	Low--------	0.15			
	50-80	2-5	1.50-1.65	>20	0.01-0.05	3.6-5.5	<2	Low--------	0.10			
21---------------- Leefield	0-31	5-10	1.45-1.60	6.0-20	0.04-0.07	4.5-6.0	<2	Low--------	0.10	5	1	1-2
	31-80	15-25	1.50-1.65	0.6-2.0	0.10-0.13	4.5-5.5	<2	Low--------	0.15			
22---------------- Leon	0-22	1-6	1.40-1.65	6.0-20	0.02-0.05	3.6-6.5	<2	Low--------	0.10	5	2	.5-4
	22-72	2-8	1.50-1.70	0.6-6.0	0.05-0.10	3.6-6.5	<2	Low--------	0.15			
	72-80	1-6	1.40-1.65	0.6-6.0	0.02-0.05	3.6-6.5	<2	Low--------	0.10			
23---------------- Maurepas	0-80	---	0.05-0.25	6.0-20.0	0.20-0.50	5.6-8.4	<4	Low--------	----	---	---	---
24---------------- Mandarin	0-25	0-3	1.35-1.45	6.0-20	0.03-0.07	3.6-6.0	<2	Low--------	0.10	5	2	<3
	25-34	2-9	1.45-1.60	0.6-2.0	0.10-0.15	3.6-6.0	<2	Low--------	0.15			
	34-80	0-3	1.35-1.45	6.0-20	0.03-0.07	3.6-7.3	<2	Low--------	0.10			
25*:												
Chowan-----------	0-5	5-25	1.20-1.40	2.0-6.0	0.15-0.20	3.6-6.0	<2	Low--------	0.32	4	5	2-4
	5-37	18-35	1.40-1.60	0.2-0.6	0.15-0.20	3.6-6.0	<2	Low--------	0.32			
	37-80	2-12	0.40-0.65	0.2-6.0	0.20-0.26	3.6-5.0	<2	Low--------	----			
Brickyard--------	0-4	28-60	1.30-1.60	0.06-0.2	0.14-0.18	5.6-7.3	<2	High-------	0.28	5	4	3-8
	4-45	35-60	1.30-1.60	<0.06	0.14-0.18	5.6-8.4	<2	Moderate	0.37			
	45-80	28-60	0.95-1.60	0.06-0.2	0.12-0.18	5.6-8.4	<2	Moderate	0.32			
Kenner-----------	0-12	---	0.05-0.25	6.0-20	0.20-0.25	5.6-7.8	<4	Low--------	----	---	8	---
	12-23	45-85	0.15-1.00	<0.06	0.12-0.18	5.6-7.8	<4	Low--------	0.32			
	23-70	---	0.05-0.50	>6.0	0.20-0.25	5.6-7.8	<4	Low--------	----			
	70-80	45-85	0.15-1.00	<0.06	0.12-0.18	5.6-7.8	<4	Low--------	0.32			
26---------------- Duckston	0-4	0-4	1.60-1.70	>20	0.02-0.08	3.6-8.4	<2	Low--------	0.10	5	1	.5-3
	4-80	0-4	1.60-1.70	>20	0.02-0.05	3.6-8.4	<2	Low--------	0.10			
27---------------- Pelham	0-37	1-8	1.50-1.70	6.0-20	0.04-0.07	3.6-5.5	<2	Low--------	0.10	5	1	1-2
	37-80	15-30	1.30-1.60	0.6-2.0	0.10-0.13	3.6-5.5	<2	Low--------	0.24			
28---------------- Plummer	0-58	1-7	1.35-1.65	2.0-20.0	0.03-0.08	3.6-5.5	<2	Low--------	0.10	5	1	1-3
	58-80	15-30	1.50-1.70	0.6-2.0	0.07-0.15	3.6-5.5	<2	Low--------	0.15			

See footnote at end of table.

TABLE 13.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Soil reaction	Salinity	Shrink- swell potential	Erosion factors K	Erosion factors T	Wind erodi- bility group	Organic matter
	In	Pct	g/cc	In/hr	In/in	pH	mmhos/cm					Pct
29--------------- Resota	0-80	0-3	1.30-1.60	>20	0.02-0.05	3.6-6.5	<2	Low--------	0.10	5	1	<1
30--------------- Rutlege	0-11	2-10	1.30-1.50	6.0-20	0.06-0.10	3.6-5.5	<2	Low--------	0.17	5	8	3-9
	11-80	2-10	1.40-1.60	6.0-20	0.04-0.08	3.6-5.5	<2	Low--------	0.17			
31--------------- Rutlege	0-13	2-10	1.30-1.50	6.0-20	0.05-0.10	3.6-5.5	<2	Low--------	0.10	5	8	3-9
	13-80	2-10	1.50-1.70	6.0-20	0.04-0.08	3.6-5.5	<2	Low--------	0.17			
32--------------- Sapelo	0-14	2-5	1.40-1.65	6.0-20	0.03-0.07	3.6-5.5	<2	Low--------	0.10	5	1	1-3
	14-26	3-7	1.35-1.60	0.6-2.0	0.10-0.15	3.6-5.5	<2	Low--------	0.15			
	26-56	3-6	1.50-1.70	6.0-20	0.03-0.07	3.6-5.5	<2	Low--------	0.17			
	56-80	10-30	1.55-1.75	0.6-2.0	0.12-0.17	3.6-5.5	<2	Low--------	0.24			
33--------------- Scranton	0-7	2-8	1.30-1.60	6.0-20	0.05-0.10	4.5-6.5	<2	Low--------	0.10	5	1	1-4
	7-80	3-12	1.40-1.60	6.0-20	0.05-0.11	4.5-6.0	<2	Low--------	0.10			
34--------------- Surrency	0-12	<10	1.50-1.70	2.0-20	0.05-0.10	3.6-5.5	<2	Low--------	0.10	5	1	2-9
	12-34	<10	1.50-1.65	2.0-20	0.05-0.10	3.6-5.0	<2	Low--------	0.10			
	34-58	10-23	1.60-1.85	0.6-6.0	0.06-0.10	3.6-5.5	<2	Low--------	0.15			
	58-80	22-35	1.65-1.85	0.6-2.0	0.10-0.15	3.6-5.5	<2	Low--------	0.15			
35--------------- Stilson	0-32	3-8	1.35-1.60	6.0-20	0.06-0.09	4.5-5.5	<2	Low--------	0.10	5	1	.5-2
	32-80	15-30	1.40-1.60	0.6-2.0	0.09-0.12	4.5-5.5	<2	Low--------	0.24			
36*:												
Pickney----------	0-41	1-10	1.20-1.40	6.0-20	0.04-0.10	3.6-6.0	<2	Low--------	0.10	5	1	3-15
	41-80	1-10	1.40-1.60	6.0-20	0.03-0.11	3.6-6.0	<2	Low--------	0.10			
Pamlico----------	0-27	---	0.20-0.65	0.6-6.0	0.24-0.40	3.6-5.5	---	-----------	0.10	---	2	20-80
	27-80	5-10	1.60-1.75	6.0-20	0.02-0.10	3.6-5.5	---	Low--------	0.10			
37*:												
Tooles-----------	0-34	2-5	1.20-1.40	6.0-20	0.05-0.10	4.5-7.3	<2	Low--------	0.10	3	2	1-4
	34-47	20-35	1.40-1.70	0.06-0.2	0.15-0.20	6.6-8.4	<2	Moderate	0.28			
	47	---	---	---	---	---	---	-----------	----			
Meadowbrook------	0-5	0-3	1.35-1.65	6.0-20	0.05-0.10	3.6-7.3	<2	Low--------	0.10	5	2	2-4
	5-48	1-6	1.35-1.65	6.0-20	0.03-0.08	3.6-8.4	<2	Low--------	0.10			
	48-70	9-20	1.50-1.70	0.2-2.0	0.10-0.15	4.5-8.4	<2	Low--------	0.15			
	70-80	11-32	1.50-1.65	0.2-2.0	0.10-0.15	4.5-8.4	<2	Low--------	0.15			
38--------------- Meadowbrook	0-4	0-3	1.35-1.65	6.0-20	0.05-0.10	3.6-7.3	<2	Low--------	0.10	5	2	1-3
	4-48	1-6	1.35-1.65	6.0-20	0.03-0.08	3.6-8.4	<2	Low--------	0.10			
	48-64	9-20	1.50-1.80	0.2-2.0	0.10-0.15	4.5-8.4	<2	Low--------	0.15			
	64-80	11-22	1.50-1.80	0.2-2.0	0.10-0.15	4.5-8.4	<2	Low--------	0.15			
39--------------- Scranton	0-8	2-8	1.30-1.60	6.0-20	0.05-0.10	4.5-6.5	<2	Low--------	0.10	5	1	1-4
	8-80	3-12	1.40-1.60	6.0-20	0.05-0.11	4.5-6.0	<2	Low--------	0.10			
40*:												
Newhan-----------	0-80	0-1	1.60-1.75	>20	<0.05	3.6-7.8	<2	Low--------	0.10	5	1	---
Corolla----------	0-80	0-3	1.60-1.70	>20	0.01-0.03	5.6-7.8	<2	Low--------	0.10	5	1	<.5
41*:												
Pamlico----------	0-46	---	0.20-0.65	0.6-6.0	0.24-0.40	3.6-5.5	<2	-----------	----	---	2	20-60
	46-80	5-10	1.60-1.75	6.0-20	0.10-0.20	3.6-5.5	<2	Low--------	0.10			

See footnote at end of table.

TABLE 13.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodibility group	Organic matter
	In	Pct	g/cc	In/hr	In/in	pH	mmhos/cm					Pct
41*:												
Pickney----------	0-35	2-10	1.20-1.40	6.0-20	0.04-0.08	3.6-5.5	<2	Low--------	0.10	5	2	3-15
	35-80	1-10	1.40-1.60	6.0-20	0.03-0.11	3.6-6.0	<2	Low--------	0.10			
42*:												
Meadowbrook------	0-5	0-3	1.35-1.65	6.0-20	0.05-0.10	3.6-7.3	<2	Low--------	0.10	5	2	1-3
	5-42	1-6	1.35-1.65	6.0-20	0.03-0.08	3.6-8.4	<2	Low--------	0.10			
	42-80	9-20	1.50-1.80	0.2-2.0	0.10-0.15	4.5-8.4	<2	Low--------	0.15			
Meggett----------	0-12	5-20	1.20-1.40	2.0-6.0	0.10-0.15	4.5-6.5	<2	Low--------	0.24	5	3	2-8
	12-20	30-60	1.45-1.60	0.06-0.2	0.13-0.18	5.1-8.4	<2	High-------	0.32			
	20-80	25-50	1.40-1.60	0.06-0.6	0.12-0.18	6.1-8.4	<2	Moderate	0.28			
Tooles-----------	0-21	2-5	1.20-1.40	6.0-20	0.05-0.10	4.5-7.3	<2	Low--------	0.10	3	2	1-4
	21-59	20-35	1.40-1.70	0.06-0.2	0.15-0.20	6.6-8.4	<2	Moderate	0.28			
	59	---	---	---	---	---	---	-----------	----			
43---------------- Meadowbrook	0-4	0-3	1.35-1.65	6.0-20	0.05-0.10	3.6-7.3	<2	Low--------	0.10	5	2	1-3
	4-57	1-6	1.35-1.65	6.0-20	0.03-0.08	3.6-8.4	<2	Low--------	0.10			
	57-65	9-20	1.50-1.80	0.2-2.0	0.10-0.15	4.5-8.4	<2	Low--------	0.15			
	65-80	11-22	1.50-1.80	0.2-2.0	0.10-0.15	4.5-8.4	<2	Low--------	0.15			
44---------------- Tooles	0-27	2-5	1.20-1.40	6.0-20	0.05-0.10	4.5-7.3	<2	Low--------	0.10	3	2	1-4
	27-50	20-35	1.40-1.70	0.06-0.2	0.15-0.20	6.6-8.4	<2	Moderate	0.28			
	50	---	---	---	---	---	---	-----------	----			
45*:												
Wehadkee---------	0-3	5-20	1.35-1.60	2.0-6.0	0.10-0.15	4.5-6.5	<2	Low--------	0.24	5	3	2-5
	3-40	18-35	1.30-1.50	0.6-2.0	0.16-0.20	4.5-6.5	<2	Low--------	0.32			
	40-80	5-20	---	---	---	---	---	-----------	----			
Meggett----------	0-18	15-25	1.20-1.40	0.6-2.0	0.15-0.20	4.5-6.5	<2	Low--------	0.28	5	5	2-8
	18-30	30-60	1.45-1.60	0.06-0.2	0.13-0.18	5.1-8.4	<2	High-------	0.32			
	30-80	35-60	1.50-1.75	0.06-0.2	0.13-0.18	6.1-8.4	<2	High-------	0.32			
46*:												
Duckston---------	0-2	0-4	1.60-1.70	>20	0.02-0.08	3.6-8.4	<2	Low--------	0.10	5	1	.5-3
	2-80	0-4	1.60-1.70	>20	0.02-0.05	3.6-8.4	<2	Low--------	0.10			
Rutlege----------	0-10	2-10	1.30-1.50	6.0-20	0.05-0.10	3.6-5.5	<2	Low--------	0.10	5	8	3-9
	10-80	2-10	1.50-1.70	6.0-20	0.04-0.08	3.6-5.5	<2	Low--------	0.17			
Corolla----------	0-80	0-3	1.60-1.70	>20	0.01-0.03	5.6-7.8	<2	Low--------	0.10	5	1	<.5
47*:												
Duckston---------	0-4	0-4	1.60-1.70	>20	0.02-0.08	3.6-8.4	<2	Low--------	0.10	5	1	.5-3
	4-80	0-4	1.60-1.70	>20	0.02-0.05	3.6-8.4	<2	Low--------	0.10			
Bohicket---------	0-5	30-60	1.20-1.40	0.06-0.2	0.02-0.06	6.1-8.4	>8	High-------	0.28	5	4	5-25
	5-39	35-60	1.30-1.60	<0.06	0.02-0.06	6.1-8.4	>8	High-------	0.24			
	39-80	35-60	---	---	---	---	---	-----------	----			
Corolla----------	0-80	0-3	1.60-1.70	>20	0.01-0.03	5.6-7.8	<2	Low--------	0.10	5	1	<.5
48. Udorthents												

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 14.--SOIL AND WATER FEATURES

("Flooding" and "water table" and terms such as "rare," "brief," "apparent," and "perched" are explained in the text. The symbol < means less than; > means more than. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Soil name and map symbol	Hydro- logic group	Flooding			High water table			Subsidence		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Ini- tial	Total	Uncoated steel	Concrete
					Ft			In	In		
2----------------- Albany	C	None--------	---	---	1.0-2.5	Apparent	Dec-Mar	---	---	High-----	High.
3*---------------- Beaches	D	Frequent---	Very brief to long.	Jan-Dec	0-1.0	Apparent	Jan-Dec	---	---	---	---
4*:											
Dirego-----------	D	Frequent---	Very long	Jan-Dec	0-0.5	Apparent	Jan-Dec	16-20	16-40	High-----	High.
Bayvi------------	D	Frequent---	Very long	Jan-Dec	0-0.5	Apparent	Jan-Dec	---	---	High-----	High.
5. Aquents											
6----------------- Blanton	A	None--------	---	---	4.0-6.0	Perched	Dec-Mar	---	---	High-----	High.
7*:											
Bohicket---------	D	Frequent---	Very long	Jan-Dec	0-0.5	Apparent	Jan-Dec	---	6-12	High-----	High.
Tisonia----------	D	Frequent---	Very long	Jan-Dec	0-0.5	Apparent	Jan-Dec	16-18	16-25	High-----	High.
8----------------- Ridgewood	C	None--------	---	---	2.0-3.5	Apparent	Jun-Nov	---	---	Low------	High.
9----------------- Chaires	B/D	None--------	---	---	0.5-1.0	Apparent	Nov-Apr	---	---	High-----	High.
10---------------- Corolla	D	Rare--------	---	---	1.5-3.0	Apparent	Nov-May	---	---	Low------	Low.
11*:											
Dorovan----------	D	None--------	---	---	+2-0	Apparent	Jan-Dec	6-12	51-80	High-----	High.
Pamlico----------	D	Rare--------	---	---	+2-0	Apparent	Dec-May	4-20	10-36	High-----	High.
12---------------- Lynchburg	C	None--------	---	---	1.0-2.5	Apparent	Nov-Apr	---	---	High-----	High.
13---------------- Hurricane	C	None--------	---	---	2.0-3.5	Apparent	Nov-Apr	---	---	Low------	Moderate.
14---------------- Harbeson	D	None--------	---	---	+2-0	Apparent	Jan-Sep	0-2	2-6	Moderate	High.
15---------------- Ortega	A	None--------	---	---	3.5-5.0	Apparent	Jun-Jan	---	---	Low------	High.
16---------------- Bonsai	D	Frequent---	Brief to long.	Dec-Mar	0-0.5	Apparent	Dec-Sep	0-2	2-6	High-----	Moderate.
17, 18------------ Kershaw	A	None--------	---	---	>6.0	---	---	---	---	Low------	High.

See footnote at end of table.

TABLE 14.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydro-logic group	Flooding			High water table			Subsidence		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Ini-tial	Total	Uncoated steel	Concrete
					Ft			In	In		
19: Kureb	A	None	---	---	>6.0	---	---	---	---	Low	Low.
20: Lynn Haven	B/D	None	---	---	0-1.0	Apparent	Jun-Feb	---	---	High	High.
21: Leefield	C	None	---	---	1.5-2.5	Apparent	Dec-Mar	---	---	Moderate	High.
22: Leon	B/D	None	---	---	0.5-1.0	Apparent	Jun-Feb	---	---	High	High.
23: Maurepas	D	Frequent	Brief to very long.	Jan-Dec	0-0.5	Apparent	Jan-Dec	15-30	>51	High	High.
24: Mandarin	C	None	---	---	1.5-3.0	Apparent	Jun-Dec	---	---	Moderate	High.
25*:											
Chowan	D	Frequent	Very long	Dec-Apr	0-0.5	Apparent	Nov-May	---	---	High	High.
Brickyard	D	Frequent	Long to very long.	Dec-Apr	0-0.5	Apparent	Dec-Aug	---	---	Moderate	Moderate.
Kenner	D	Frequent	Very long	Dec-Apr	+1-0.5	Apparent	Jan-Dec	15-30	>51	High	Moderate.
26: Duckston	A/D	Occasional	Brief	Jan-Dec	0-1.0	Apparent	Jan-Dec	---	---	Low	Low.
27: Pelham	B/D	None	---	---	0-1.5	Apparent	Jan-Apr	---	---	High	High.
28: Plummer	B/D	None	---	---	0-1.0	Apparent	Dec-Jul	---	---	Moderate	High.
29: Resota	A	None	---	---	3.5-5.0	Apparent	Dec-Apr	---	---	Low	High.
30: Rutlege	B/D	None	---	---	+2-0	Apparent	Dec-May	---	---	High	High.
31: Rutlege	B/D	None	---	---	0-0.5	Apparent	Dec-May	---	---	High	High.
32: Sapelo	D	None	---	---	0.5-1.5	Apparent	Nov-Apr	---	---	High	High.
33: Scranton	A/D	None	---	---	0.5-1.5	Apparent	Nov-Apr	---	---	Low	High.
34: Surrency	D	Occasional	Very long	Dec-Mar	0-0.5	Apparent	Jan-Dec	---	---	High	High.
35: Stilson	B	None	---	---	2.5-3.0	Apparent	Dec-Apr	---	---	Moderate	High.
36*:											
Pickney	A/D	None	---	---	+1-0	Apparent	Nov-Apr	---	---	High	High.

See footnote at end of table.

TABLE 14.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding: Frequency	Flooding: Duration	Flooding: Months	High water table: Depth	High water table: Kind	High water table: Months	Subsidence: Initial	Subsidence: Total	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
					Ft			In	In		
36*:											
Pamlico	D	None	---	---	+1.0	Apparent	Nov-Apr	4-20	10-36	High	High.
37*:											
Tooles	D	None	---	---	+2-0	Apparent	Jun-Mar	---	---	High	Moderate.
Meadowbrook	D	None	---	---	+2-0	Apparent	Jun-Mar	---	---	Moderate	High.
38 Meadowbrook	B/D	Rare	---	---	0.5-1.0	Apparent	Aug-Mar	---	---	Moderate	High.
39 Scranton	A/D	Rare	---	---	0-0.5	Apparent	Nov-Apr	---	---	Low	High.
40*:											
Newhan	A	Rare	---	---	>6.0	---	---	---	---	High	Low.
Corolla	D	Rare	---	---	1.5-3.0	Apparent	Nov-May	---	---	Low	Low.
41*:											
Pamlico	D	Frequent	Brief to long.	Nov-Jul	+1-0	Apparent	Jan-Dec	4-12	10-29	High	High.
Pickney	D	Frequent	Brief to long.	Nov-Jul	+1-0	Apparent	Nov-Jun	---	---	High	High.
42*:											
Meadowbrook	B/D	Frequent	Long	Nov-Jul	0-1.0	Apparent	Aug-Mar	---	---	Moderate	High.
Meggett	D	Frequent	Long	Nov-Jul	0-1.0	Apparent	Nov-Apr	---	---	High	Moderate.
Tooles	D	Frequent	Long	Nov-Jul	0-1.0	Apparent	Nov-May	---	---	High	Moderate.
43 Meadowbrook	B/D	None	---	---	0-0.5	Apparent	Aug-Mar	---	---	Moderate	High.
44 Tooles	D	None	---	---	0.5-1.0	Apparent	Feb-Sep	---	---	High	Moderate.
45*:											
Wehadkee	D	Frequent	Long	Nov-Jun	0-1.0	Apparent	Nov-May	---	---	High	Moderate.
Meggett	D	Frequent	Long	Dec-Apr	0-1.0	Apparent	Nov-Apr	---	---	High	Moderate.
46*:											
Duckston	A/D	Occasional	Brief	Jan-Dec	0-1.0	Apparent	Jan-Dec	---	---	Low	Low.
Rutlege	B/D	Occasional	Brief	Jan-Dec	+1.5-1.0	Apparent	Dec-May	---	---	High	High.
Corolla	D	Rare	---	---	1.5-3.0	Apparent	Nov-May	---	---	Low	Low.
47*:											
Duckston	A/D	Occasional	Brief	Jan-Dec	0-1.0	Apparent	Jan-Dec	---	---	Low	Low.
Bohicket	D	Frequent	Brief	Jan-Dec	0-0.5	Apparent	Jan-Dec	---	6-12	High	High.
Corolla	D	Rare	---	---	1.5-3.0	Apparent	Nov-May	---	---	Low	Low.
48. Udorthents											

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 15.--PHYSICAL ANALYSES OF SELECTED SOILS

(Some of these properties differ slightly from those given in table 13. Most of the differences are within the parameters of normal laboratory error. They do not significantly affect use and management of the soils)

Soil name and sample number	Depth	Horizon	Particle-size distribution: Sand: Very coarse (2.0-1.0 mm)	Sand: Coarse (1-0.5 mm)	Sand: Medium (0.5-0.25 mm)	Sand: Fine (0.25-0.1 mm)	Sand: Very fine (0.1-0.05 mm)	Sand: Total (2-0.05 mm)	Silt (0.05-0.002 mm)	Clay (<0.002 mm)	Hydraulic conductivity	Bulk density (field moist)	Water content: 1/10 bar	Water content: 1/3 bar	Water content: 15 bar
	In		Pct	Pct	Pct	Pct	Pct	Pct	Pct	Pct	Cm/hr	g/cm^3	Pct (wt)	Pct (wt)	Pct (wt)
Albany sand:															
S19 13-1	0-6	Ap	0.8	6.6	21.2	47.8	19.1	95.5	4.3	0.2	26.6	1.37	9.0	4.9	1.1
-2	6-10	E	0.5	6.5	22.1	47.4	18.8	95.3	4.6	0.1	21.0	1.55	5.8	2.6	0.3
-3	10-16	Bw	0.8	6.8	22.2	46.7	16.5	93.0	5.2	1.8	24.3	1.52	6.9	3.6	0.8
-4	16-29	E'1	1.0	7.8	26.0	45.5	14.0	94.3	4.2	1.5	28.9	1.52	5.6	2.9	0.8
-5	29-56	E'2	2.2	11.2	26.4	42.3	13.3	95.4	4.2	0.4	19.1	1.61	6.0	2.6	0.3
-6	56-80	Btg	2.1	10.0	22.4	38.8	12.4	88.7	3.0	11.3	2.0	1.75	13.6	9.1	4.1
Blanton sand:															
S19-15-1	0-6	Ap	0.1	3.7	28.1	58.6	5.3	95.9	2.9	1.2	27.9	1.55	5.1	3.1	0.5
-2	6-31	E1	0.2	4.1	30.8	56.2	4.2	95.2	2.8	1.7	59.2	1.59	3.6	2.1	0.6
-3	31-61	E2	0.2	3.8	28.7	59.1	5.3	97.1	2.1	0.8	51.3	1.63	2.7	1.3	0.1
-4	61-72	E3	0.1	4.5	35.2	52.9	3.3	96.0	2.3	1.7	36.5	1.60	3.6	2.1	0.2
-5	72-80	Bt	0.1	3.3	29.8	46.8	2.3	82.3	2.7	15.0	3.2	1.67	14.3	11.1	5.4
Chaires sand:															
S19-5-1	0-6	Ap	1.2	11.8	34.4	45.4	3.2	96.0	3.4	0.6	40.1	1.01	18.6	13.4	3.8
-2	6-14	E	1.1	11.1	30.3	49.7	3.8	96.0	2.8	1.2	35.8	1.58	3.9	2.2	0.3
-3	14-19	Bh1	1.4	9.7	25.8	48.6	4.4	90.0	7.4	2.7	14.1	1.61	10.8	7.6	1.9
-4	19-24	Bh2	1.7	11.4	30.4	46.0	3.1	92.6	4.8	2.6	27.6	1.59	7.0	4.3	1.2
-5	24-33	E'	0.9	10.3	29.3	49.3	3.8	93.6	2.7	3.7	31.6	1.59	5.1	3.0	0.6
-6	33-40	Btg1	0.8	10.0	27.3	38.9	2.8	79.8	5.1	15.1	8.1	1.76	11.5	8.9	4.2
-7	40-56	Btg2	1.4	9.4	26.3	37.7	2.6	77.4	15.0	7.6	0.6	1.69	15.3	12.6	6.0
-8	56-80	Btg3	0.3	6.0	20.3	47.4	4.1	78.1	1.7	20.2	1.1	1.23	31.2	26.3	11.8
Corolla sand:															
S19-9-1	0-6	A	0.0	2.2	74.3	22.7	0.1	99.3	0.6	0.1	102.0	1.55	3.4	2.6	0.9
-2	6-32	C1	0.0	1.6	62.3	34.2	0.2	98.3	0.3	1.4	78.2	1.58	2.3	1.7	1.4
-3	32-34	Ab	0.1	9.1	55.1	33.5	0.9	98.7	1.2	0.1	77.6	1.52	2.4	1.3	0.5
-4	34-57	Cg1	0.0	8.4	65.5	25.6	0.3	99.8	0.1	0.1	116.0	1.50	2.2	1.6	1.2
-5	57-80	Cg2	0.0	6.5	70.8	22.2	0.2	99.7	0.2	0.1	110.0	1.57	2.3	1.8	1.1
Hurricane fine sand:															
S19-11-1	0-5	Ap	0.2	3.1	19.3	73.0	1.8	97.4	2.4	0.2	34.2	1.48	5.1	2.9	1.5
-2	5-9	E	0.4	3.2	18.8	73.6	1.6	97.6	1.9	0.5	36.5	1.58	3.1	1.7	0.7
-3	9-14	Bw1	0.3	2.9	17.1	72.6	2.0	94.9	3.5	1.6	58.5	1.45	5.2	2.9	0.6
-4	14-32	Bw2	0.7	4.1	19.5	69.2	1.9	95.4	2.7	1.9	42.7	1.53	3.8	2.2	0.7
-5	32-53	BE	1.1	3.9	17.6	72.5	1.8	96.9	2.0	1.1	41.7	1.53	3.2	1.8	0.4
-6	53-74	E'	1.2	3.6	16.9	75.7	1.3	98.7	0.8	0.5	45.0	1.52	2.8	1.8	0.2
-7	74-80	Bh	0.9	2.8	16.4	74.7	1.1	95.9	1.1	2.0	8.2	1.62	11.0	7.2	1.8

TABLE 15.--PHYSICAL ANALYSES OF SELECTED SOILS--Continued

Soil name and sample number	Depth	Horizon	Particle-size distribution: Sand: Very coarse (2.0-1.0 mm)	Coarse (1-0.5 mm)	Medium (0.5-0.25 mm)	Fine (0.25-0.1 mm)	Very fine (0.1-0.05 mm)	Total (2-0.05 mm)	Silt (0.05-0.002 mm)	Clay (<0.002 mm)	Hydraulic conductivity	Bulk density (field moist)	Water content: 1/10 bar	1/3 bar	15 bar
	In		Pct	Pct	Pct	Pct	Pct	Pct	Pct	Pct	Cm/hr	g/cm^3	Pct (wt)		
Kershaw sand:															
S19-2-1	0-5	A	0.1	5.8	45.4	46.6	0.4	98.3	0.4	1.3	28.3	1.50	4.2	2.4	0.4
-2	5-39	C1	0.0	2.0	27.7	65.4	2.2	97.3	1.3	1.4	61.1	1.45	3.3	1.6	0.4
-3	39-58	C2	0.0	2.4	29.1	65.9	2.1	99.5	0.5	0.3	71.7	1.50	3.0	1.9	0.3
-4	58-80	C3	0.0	1.0	19.2	76.2	2.2	98.6	0.1	1.3	54.6	1.53	3.0	2.0	0.2
Kureb fine sand:															
S19-1-1	0-4	A	0.0	2.7	43.2	52.3	1.2	99.4	0.5	0.2	53.2	1.52	3.4	2.8	0.9
-2	4-10	E1	0.0	2.7	43.5	51.0	1.2	98.4	0.0	1.6	42.7	1.41	4.7	3.4	1.6
-3	10-26	E2	0.0	2.3	42.0	53.2	1.1	98.6	0.0	1.4	67.1	1.54	2.4	2.1	0.4
-4	26-49	C/Bh1	0.0	2.0	37.6	57.3	1.3	98.2	0.5	1.3	80.9	1.49	3.6	2.0	0.5
-5	49-80	C/Bh2	0.1	4.6	43.2	51.1	0.6	99.6	0.1	0.3	86.1	1.49	2.4	1.4	0.2
Leefield sand:															
S19-12-1	0-7	Ap	0.8	8.6	26.5	40.4	16.3	92.6	5.8	1.6	23.9	1.49	14.1	8.4	0.8
-2	7-11	AE	0.9	9.5	27.5	38.5	14.3	90.7	7.5	1.8	19.3	1.66	6.3	3.8	0.8
-3	11-25	E	1.3	8.8	23.1	40.1	16.7	90.0	8.4	1.6	11.7	1.58	6.4	3.7	0.6
-4	25-31	EB	2.1	12.1	24.9	36.3	13.3	88.7	8.3	3.0	11.8	1.63	6.6	4.3	1.2
-5	31-50	Btv	1.6	10.0	22.6	32.5	11.8	78.5	9.1	12.4	1.3	1.76	13.4	11.0	6.4
-6	50-80	Btg	1.4	10.1	19.0	25.8	14.8	71.1	5.1	23.8	0.6	1.79	15.9	13.3	8.1
Leon sand:															
S19-6-1	0-8	Ap	0.3	13.3	45.5	37.3	1.8	98.2	1.7	0.1	64.4	1.31	8.5	6.2	2.1
-2	8-22	E	0.2	11.0	42.4	41.0	2.0	96.6	0.2	3.2	71.0	1.40	4.8	3.2	0.9
-3	22-40	Bh1	0.3	12.8	45.4	36.6	1.7	96.8	2.1	1.1	19.9	1.34	22.6	16.1	2.6
-4	40-72	Bh2	0.4	13.3	45.5	37.9	1.4	98.5	1.0	0.5	22.1	1.64	11.3	8.6	2.3
-5	72-80	C	0.0	5.0	37.2	54.0	1.2	97.4	0.2	2.4	39.4	1.60	6.2	4.0	1.2
Lynchburg loamy fine sand:															
S19-22-1	0-5	Ap	0.1	1.5	6.5	45.2	28.5	81.8	12.9	5.3	4.0	1.29	23.2	12.9	2.7
-2	5-11	B	0.1	1.4	5.7	45.1	29.4	81.7	12.7	5.6	0.6	1.67	13.0	7.2	1.9
-3	11-18	Bt1	0.0	1.2	4.8	37.6	30.4	74.0	13.8	12.2	0.4	1.76	13.7	8.7	3.9
-4	18-32	Bt2	0.0	0.8	3.6	32.4	27.2	64.0	14.2	21.8	0.4	1.73	16.6	12.7	6.5
-5	32-66	Btg	0.0	0.6	3.4	27.0	21.6	52.6	11.6	35.8	0.1	1.57	23.6	21.7	14.5
-6	66-80	BC	0.0	1.6	6.0	10.0	14.4	32.0	25.5	42.5	0.1	1.51	27.2	16.2	16.2

TABLE 15.--PHYSICAL ANALYSES OF SELECTED SOILS--Continued

Soil name and sample number	Depth	Horizon	Particle-size distribution: Sand: Very coarse (2.0-1.0 mm)	Coarse (1-0.5 mm)	Medium (0.5-0.25 mm)	Fine (0.25-0.1 mm)	Very fine (0.1-0.05 mm)	Total (2-0.05 mm)	Silt (0.05-0.002 mm)	Clay (<0.002 mm)	Hydraulic conductivity	Bulk density (field moist)	Water content: 1/10 bar	1/3 bar	15 bar
	In		Pct	Pct	Pct	Pct	Pct	Pct	Pct	Pct	Cm/hr	g/cm^3	----Pct (wt)-----		
Mandarin fine sand:															
S19-4-1	0-4	Ap	0.0	0.6	40.1	57.0	0.6	98.3	0.2	1.5	59.8	1.37	4.4	3.1	1.4
-2	4-25	E	0.0	1.0	41.3	55.3	0.3	97.9	1.2	0.9	43.1	1.55	2.8	1.8	0.3
-3	25-30	Bh1	0.0	0.8	36.2	54.9	0.5	92.5	4.4	3.1	47.3	1.37	9.0	6.3	1.4
-4	30-34	Bh2	0.0	0.9	38.8	52.2	0.3	92.2	4.3	3.5	48.3	1.37	8.0	5.4	1.4
-5	34-61	BC	0.0	0.9	39.7	51.0	0.3	91.9	3.6	4.5	57.0	1.44	5.5	3.9	1.1
-6	61-80	C	0.0	0.3	29.4	68.9	0.5	99.1	0.3	0.6	55.9	1.51	2.7	1.7	0.1
Meadowbrook sand:															
S19-20-1	0-6	Ap	4.4	13.7	23.1	47.5	4.3	93.0	5.1	1.9	34.2	1.44	8.6	5.2	1.1
-2	6-17	E1	5.4	17.6	29.8	39.4	4.4	96.6	2.2	1.2	44.4	1.59	4.1	2.2	0.4
-3	17-26	E2	4.9	15.4	29.8	41.0	4.1	95.2	3.2	1.6	20.7	1.67	7.4	4.8	0.6
-4	26-32	E3	7.2	17.0	29.3	38.9	3.8	96.2	2.4	1.4	30.9	1.70	5.2	3.2	0.5
-5	32-43	E4	7.0	18.7	29.2	34.9	3.2	93.0	4.6	2.4	30.6	1.74	4.5	2.5	0.5
-6	43-65	E5	6.8	18.8	30.4	35.1	3.2	94.3	0.1	5.8	15.1	1.80	5.0	3.0	0.9
-7	65-80	Btg	5.6	13.8	11.8	10.3	17.0	58.5	14.7	26.8	5.8	1.43	28.6	23.6	10.0
Ortega fine sand:															
S19-10-1	0-5	Ap	0.2	4.8	32.1	56.6	3.3	97.1	1.9	1.0	37.5	1.52	4.8	2.8	1.2
-2	5-43	C1	0.2	5.0	31.0	55.9	3.7	95.8	2.0	2.2	52.3	1.50	4.0	2.4	0.6
-3	43-63	C2	0.3	5.2	31.2	56.6	3.2	96.5	1.8	1.7	47.3	1.65	3.0	1.7	0.5
-4	63-80	Cg	0.0	5.7	31.3	57.6	2.7	97.3	1.7	1.0	39.1	1.63	4.2	1.5	0.4
Pelham fine sand:															
S19-18-1	0-8	Ap	0.4	3.8	10.7	56.1	21.6	92.6	2.9	4.5	33.5	1.23	18.2	10.8	2.5
-2	8-31	E	0.4	3.8	11.5	52.4	22.2	90.3	6.7	3.0	14.2	1.56	12.6	5.9	1.8
-3	31-40	BE	0.4	4.0	11.3	53.8	17.3	86.8	7.5	5.7	3.0	1.69	11.5	5.4	2.4
-4	40-59	Btg1	0.4	4.1	11.1	53.2	17.6	86.4	6.3	7.3	3.5	1.61	15.3	9.3	3.9
-5	59-80	Btg2	0.9	6.0	14.7	55.4	14.7	91.7	2.4	5.9	5.1	1.69	11.5	5.5	2.2
Resota fine sand:															
S19-3-1	0-3	Ap	0.0	0.8	43.6	53.9	0.5	98.8	1.2	0.0	40.1	1.45	4.3	2.8	0.9
-2	3-22	E	0.0	0.8	42.5	54.9	0.3	98.5	0.2	1.3	54.6	1.51	3.2	2.6	0.7
-3	22-44	Bw1	0.0	0.9	41.4	53.3	0.3	95.9	0.9	3.2	61.8	1.48	3.9	2.4	0.6
-4	44-58	Bw2	0.0	0.6	37.8	58.0	0.4	96.8	0.6	2.6	62.5	1.54	2.9	1.7	0.6
-5	58-80	C	0.0	0.5	39.5	57.8	0.4	98.2	0.5	1.3	73.6	1.52	2.7	1.7	0.2
Ridgewood sand:															
S19-8-1	0-5	Ap	0.0	3.3	62.4	32.3	0.4	98.5	1.0	0.5	65.7	1.52	4.4	2.3	0.6
-2	5-21	C1	0.0	2.6	59.1	34.8	0.4	96.9	1.2	1.9	110.0	1.49	2.7	1.7	0.5
-3	21-34	C2	0.0	3.1	59.8	33.8	0.4	97.1	0.2	2.7	104.0	1.54	2.5	1.6	0.6
-4	34-64	C3	0.0	2.2	54.0	40.3	0.4	96.9	0.4	2.7	88.1	1.52	1.9	1.0	0.1
-5	64-80	C4	0.0	3.3	57.0	37.9	0.4	98.6	1.3	0.1	78.9	1.54	1.8	1.0	0.2

TABLE 15.--PHYSICAL ANALYSES OF SELECTED SOILS--Continued

Soil name and sample number	Depth	Horizon	Particle-size distribution: Sand: Very coarse (2.0-1.0 mm)	Coarse (1-0.5 mm)	Medium (0.5-0.25 mm)	Fine (0.25-0.1 mm)	Very fine (0.1-0.05 mm)	Total (2-0.05 mm)	Silt (0.05-0.002 mm)	Clay (<0.002 mm)	Hydraulic conductivity	Bulk density (field moist)	Water content: 1/10 bar	1/3 bar	15 bar
	In		Pct	Pct	Pct	Pct	Pct	Pct	Pct	Pct	Cm/hr	g/cm^3	Pct (wt)	Pct (wt)	Pct (wt)
Sapelo fine sand:															
S19-16-1	0-7	Ap	0.6	7.7	22.7	52.3	10.7	94.0	4.6	1.5	9.8	1.45	10.4	5.1	0.8
-2	7-12	E	0.6	7.8	22.0	52.7	10.4	93.5	5.9	0.6	11.8	1.52	7.3	4.0	0.4
-3	12-19	Bh	0.4	7.4	22.4	52.5	10.0	94.0	4.6	2.7	23.3	1.43	11.3	7.2	1.7
-4	19-49	E'	0.8	4.8	22.4	53.0	9.7	90.7	8.0	1.3	29.3	1.62	6.5	3.7	0.7
-5	49-54	Btg1	0.7	8.5	24.4	44.3	8.0	85.9	7.8	6.3	3.2	1.78	10.5	7.0	2.7
-6	54-80	Btg2	0.7	10.0	32.4	36.7	5.7	85.5	3.0	11.5	3.8	1.78	8.8	6.3	2.9
Scranton fine sand:															
S19-7-1	0-7	A	0.0	4.5	28.9	59.3	2.9	95.5	3.2	1.3	72.3	1.10	19.2	14.2	3.4
-2	7-22	Cg1	0.0	4.2	28.6	60.4	2.9	96.1	2.2	1.7	25.3	1.53	6.9	4.2	1.2
-3	22-46	Cg2	0.0	4.1	30.0	58.1	2.4	94.6	1.4	4.0	33.5	1.49	8.6	5.5	1.0
-4	46-80	Cg3	0.0	4.9	33.5	52.2	1.7	92.3	0.6	7.1	7.7	1.67	10.0	6.3	3.7
Scranton fine sand:															
S19-17-1	0-6	Ap	1.3	8.5	21.3	56.6	9.9	96.6	1.3	2.1	7.9	1.50	12.3	6.3	1.1
-2	6-20	AC	0.9	7.6	20.5	55.4	10.8	95.2	3.0	1.8	23.7	1.53	12.4	7.2	1.3
-3	20-39	C1	0.5	7.2	20.9	53.8	10.1	92.8	4.6	2.6	13.8	1.77	8.5	4.3	0.8
-4	39-57	C2	1.1	10.0	23.5	52.4	7.7	94.7	2.4	2.9	8.0	1.75	7.7	4.4	2.4
-5	57-80	C3	1.1	10.8	21.5	50.5	7.8	91.7	0.7	7.6	6.4	1.71	10.9	7.0	2.8
Stilson fine sand:															
S19-14-1	0-7	Ap	0.0	1.0	8.1	53.2	25.0	87.3	12.6	0.1	7.6	1.44	15.8	6.4	1.0
-2	7-13	E1	0.0	0.8	7.4	53.8	24.5	86.5	11.6	1.9	13.8	1.52	11.6	5.5	1.0
-3	13-32	E2	0.0	0.8	6.1	52.5	26.6	86.9	11.0	2.1	6.0	1.60	10.0	4.4	0.6
-4	32-43	Bt	0.1	0.9	6.0	49.1	23.3	79.5	11.1	9.4	3.3	1.65	12.9	8.3	3.9
-5	43-59	Btv	0.1	0.8	6.0	41.8	21.4	70.1	9.8	20.1	0.6	1.70	18.2	14.8	7.9
-6	59-80	B't	0.0	0.7	5.7	43.5	22.2	72.1	6.2	21.7	0.4	1.74	17.4	14.5	8.0
Tooles loamy sand:															
S19-21-1	0-7	Ap	2.4	10.8	24.0	28.8	17.9	83.9	12.3	3.8	8.9	1.46	13.5	9.4	1.5
-2	7-17	E1	2.0	11.3	25.4	27.9	18.7	85.3	11.6	3.1	3.4	1.76	9.9	6.6	0.9
-3	17-24	E2	1.3	9.0	22.5	30.1	19.5	82.4	14.0	3.6	3.2	1.65	10.7	6.3	1.3
-4	24-30	Btg1	1.6	10.6	22.6	24.6	19.0	78.4	8.2	13.4	1.9	1.62	20.8	17.8	8.6
-5	30-50	Btg2	1.6	9.8	21.2	20.4	14.6	67.6	15.1	17.3	0.2	1.64	18.9	15.6	6.9

TABLE 16.--CHEMICAL ANALYSES OF SELECTED SOILS

(Some of these properties differ slightly from those given in table 13. Most of the differences are within the parameters of normal laboratory error. They do not significantly affect use and management of the soils)

Soil name and sample number	Depth	Horizon	Extractable bases: Ca	Mg	Na	K	Sum	Extractable acidity	Sum of cations	Base saturation	Organic carbon	Electrical conductivity	pH: H_2O (1:1)	$CaCl_2$ 0.01M (1:2)	KCl 1N (1:1)	Pyrophosphate extractable: C	Fe	Al	Citrate-dithionite extractable: Fe	Al
	In		Milliequivalents/100 grams of soil							Pct	Pct	mmhos/cm				Pct	Pct	Pct	Pct	Pct
Albany sand:																				
S19-13-1	0-6	Ap	0.09	0.04	0.02	0.01	0.16	2.45	2.61	6	0.56	0.03	4.1	3.4	3.4	---	---	---	---	---
-2	6-10	E	0.02	0.01	0.01	0.00	0.04	0.95	0.99	4	0.13	0.11	3.9	4.0	3.9	---	---	---	---	---
-3	10-16	Bw	0.03	0.02	0.02	0.00	0.07	3.27	3.34	2	0.47	0.03	4.2	4.2	4.4	---	---	---	---	---
-4	16-29	E'1	0.03	0.02	0.03	0.00	0.08	1.71	1.79	4	0.18	0.03	4.3	4.3	4.5	---	---	---	---	---
-5	29-56	E'2	0.02	0.02	0.02	0.00	0.06	0.72	0.78	8	0.05	0.02	4.5	4.5	4.6	---	--	---	---	---
-6	56-80	Btg	0.04	0.04	0.04	0.02	0.14	4.05	4.19	3	0.06	0.03	4.3	4.0	4.2	---	---	---	0.19	0.07
Blanton fine sand:																				
S19-15-1	0-6	Ap	0.05	0.02	0.02	0.01	0.10	2.32	2.42	4	0.43	0.02	4.5	4.0	3.9	---	---	---	---	---
-2	6-31	E1	0.02	0.02	0.02	0.00	0.06	1.34	1.40	4	0.09	0.02	4.4	4.3	4.6	---	---	---	---	---
-3	31-61	E2	0.03	0.01	0.01	0.00	0.05	0.89	0.85	6	0.02	0.01	4.8	4.4	4.7	---	---	---	---	---
-4	61-72	E3	0.04	0.03	0.02	0.00	0.09	0.93	1.02	9	0.01	0.02	4.5	4.4	4.6	---	---	---	---	---
-5	72-80	Bt	0.24	0.74	0.05	0.03	1.06	4.16	5.22	20	0.12	0.03	4.5	4.4	4.4	---	---	---	0.62	0.13
Chaires sand:																				
S19-5-1	0-6	Ap	0.20	0.13	0.01	0.01	0.35	4.43	4.78	7	0.92	0.06	3.9	3.4	3.5	---	---	---	---	---
-2	6-14	E	0.07	0.02	0.01	0.00	0.10	0.75	0.85	12	0.16	0.01	5.2	3.9	4.1	---	---	---	---	---
-3	14-19	Bh1	0.08	0.03	0.02	0.00	0.13	6.01	6.14	2	1.00	0.02	4.7	4.2	4.2	0.86	0.05	0.15	0.10	0.16
-4	19-24	Bh2	0.08	0.02	0.01	0.00	0.11	3.52	3.63	3	0.67	0.02	4.8	4.5	4.6	0.49	0.18	0.21	0.24	0.19
-5	24-33	E'	0.10	0.07	0.02	0.00	0.19	0.95	1.14	17	0.11	0.01	6.2	4.6	4.7	---	---	---	---	---
-6	33-40	Btg1	2.77	1.93	0.04	0.03	4.77	0.28	5.05	94	0.03	0.03	6.1	5.5	5.6	---	---	---	1.24	0.13
-7	40-56	Btg2	5.12	4.93	0.07	0.06	10.18	0.88	11.06	92	0.08	0.07	6.5	6.0	6.1	---	---	---	0.38	0.06
-8	56-80	Btg3	5.12	3.04	0.12	0.10	8.38	1.26	9.64	87	0.04	0.05	6.8	6.2	6.2	---	---	---	0.31	0.05
Corolla sand:																				
S19-9-1	0-6	A	0.07	0.05	0.01	0.00	0.13	0.11	0.24	54	0.21	0.01	5.4	4.3	4.2	---	---	---	---	---
-2	6-32	C1	0.05	0.05	0.01	0.00	0.11	0.00	0.11	100	0.05	0.00	4.2	5.0	5.0	---	---	---	---	---
-3	32-34	Ab	0.05	0.05	0.01	0.00	0.11	0.00	0.11	100	0.12	0.01	5.6	4.7	4.7	---	---	---	---	---
-4	34-57	Cg1	0.03	0.02	0.01	0.00	0.06	0.00	0.06	100	0.03	0.01	6.3	5.4	5.2	---	---	---	---	---
-5	57-80	Cg2	0.03	0.02	0.01	0.00	0.06	0.00	0.06	100	0.05	0.01	6.1	5.4	5.3	---	---	---	---	---
Hurricane fine sand:																				
S19-11-1	0-5	Ap	0.36	0.10	0.30	0.01	0.77	3.37	4.14	19	0.72	0.03	4.1	3.5	3.6	---	---	---	---	---
-2	5-9	E	0.05	0.02	0.02	0.00	0.09	0.89	0.93	9	0.24	0.02	4.4	3.8	4.0	---	---	---	---	---
-3	9-14	Bw1	0.13	0.05	0.03	0.00	0.21	2.43	2.64	8	0.48	0.02	4.7	4.2	4.6	---	---	---	---	---
-4	14-32	Bw2	0.04	0.02	0.03	0.00	0.09	1.39	1.48	6	0.18	0.01	4.6	4.2	4.7	---	---	---	---	---
-5	32-53	BE	0.02	0.01	0.01	0.00	0.04	0.87	0.91	4	0.13	0.01	4.6	4.2	4.6	---	---	---	---	---
-6	53-74	E'	0.01	0.00	0.02	0.00	0.03	0.41	0.44	7	0.07	0.02	5.0	4.4	4.9	---	---	---	---	---
-7	74-80	Bh	0.02	0.01	0.02	0.00	0.05	3.47	3.52	1	0.14	0.02	4.5	4.3	4.6	0.03	0.02	0.14	0.04	0.08

TABLE 16.--CHEMICAL ANALYSES OF SELECTED SOILS--Continued

Soil name and sample number	Depth	Horizon	Extractable bases: Ca	Mg	Na	K	Sum	Extractable acidity	Sum of cations	Base saturation	Organic carbon	Electrical conductivity	pH H_2O (1:1)	pH $CaCl_2$ 0.01M (1:2)	pH KCl 1N (1:1)	Pyrophosphate extractable: C	Fe	Al	Citrate-dithionite extractable: Fe	Al
	In		----Milliequivalents/100 grams of soil-----							Pct	Pct	mmhos/cm				Pct	Pct	Pct	Pct	Pct
Kershaw sand:																				
S19-2-1	0-5	A	0.60	0.05	0.01	0.00	0.66	0.77	1.43	46	0.34	0.02	5.1	4.4	4.3	---	---	---	---	---
-2	5-39	C1	0.03	0.02	0.01	0.00	0.06	0.78	0.84	7	0.16	0.01	5.0	4.9	5.2	---	---	---	---	---
-3	39-58	C2	0.01	0.01	0.00	0.00	0.02	0.57	0.59	3	0.09	0.01	5.2	5.1	5.4	---	---	---	---	---
-4	58-80	C3	0.01	0.03	0.00	0.00	0.04	0.24	0.28	14	0.07	0.01	5.5	5.2	5.4	---	---	---	---	---
Kureb fine sand:																				
S19-1-1	0-4	A	0.13	0.07	0.01	0.00	0.21	1.69	1.90	11	0.85	0.04	4.6	3.6	3.7	---	---	---	---	---
-2	4-10	E1	0.11	0.04	0.01	0.00	0.16	0.67	0.83	19	0.67	0.03	4.4	3.5	3.8	---	---	---	---	---
-3	10-26	E2	0.03	0.01	0.00	0.00	0.04	0.14	0.18	22	0.09	0.01	5.5	4.7	4.8	---	---	---	---	---
-4	26-49	C/Bh1	0.03	0.01	0.00	0.00	0.04	1.28	1.32	3	0.15	0.02	4.8	4.6	4.7	0.07	0.08	0.05	0.15	0.02
-5	49-80	C/Bh2	0.02	0.01	0.01	0.00	1.04	0.50	0.54	7	0.11	0.01	5.5	4.9	4.9	0.17	0.02	0.01	0.09	0.00
Leefield sand:																				
S19-12-1	0-7	Ap	0.06	0.05	0.02	0.01	0.14	3.16	3.30	4	0.57	0.03	4.3	3.6	3.6	---	---	---	---	---
-2	7-11	AE	0.02	0.01	0.02	0.01	0.06	2.13	2.19	3	0.21	0.02	4.5	4.2	4.6	---	---	---	---	---
-3	11-25	E	0.01	0.01	0.01	0.00	0.03	1.00	1.03	3	0.08	0.02	4.7	4.3	4.6	---	---	---	---	---
-4	25-31	EB	0.10	0.05	0.03	0.01	0.19	1.13	1.32	14	0.06	0.02	4.5	4.3	4.5	---	---	---	---	---
-5	31-50	Btv	0.10	0.17	0.03	0.02	0.32	3.42	3.74	9	0.10	0.03	4.4	4.1	4.3	---	---	---	1.13	0.16
-6	50-80	Btg	0.11	0.15	0.04	0.01	0.31	5.19	5.41	6	0.08	0.02	4.5	4.1	4.1	---	---	---	0.16	0.06
Leon sand:																				
S19-6-1	0-8	Ap	0.06	0.19	0.06	0.01	0.32	5.48	5.80	6	2.38	0.04	4.2	3.1	3.1	---	---	---	---	---
-2	8-22	E	0.02	0.03	0.02	0.00	0.07	0.00	0.07	100	0.12	0.01	4.7	3.8	3.8	---	---	---	---	---
-3	22-40	Bh1	0.02	0.08	0.03	0.00	0.13	10.72	10.85	1	2.25	0.04	4.1	3.5	3.5	1.82	0.01	0.13	0.07	0.13
-4	40-72	Bh2	0.02	0.09	0.02	0.00	0.13	9.03	9.16	1	2.31	0.04	4.2	3.5	3.1	1.34	0.02	0.08	0.10	0.08
-5	72-80	C	0.03	0.02	0.01	0.00	0.06	2.61	2.67	2	0.31	0.02	4.5	4.2	4.2	---	---	---	---	---
Lynchburg loamy fine sand:																				
S19-22-1	0-5	Ap	0.40	0.16	0.03	0.04	0.63	7.08	7.71	8	1.60	0.04	4.7	4.3	4.2	---	---	---	---	---
-2	5-11	B	0.11	0.06	0.02	0.01	0.20	2.80	3.00	7	0.16	0.02	4.6	4.3	4.4	---	---	---	---	---
-3	11-18	Bt1	0.13	0.17	0.06	0.01	0.37	3.61	3.89	9	0.08	0.02	4.6	4.1	4.3	---	---	---	0.24	0.08
-4	18-32	Bt2	0.15	0.41	0.04	0.03	0.63	6.89	7.52	8	0.08	0.01	4.9	4.0	4.1	---	---	---	0.75	0.16
-5	32-66	Btg	0.18	0.82	0.07	0.05	1.12	11.40	12.52	9	0.08	0.01	4.7	3.9	3.9	---	---	---	1.43	0.19
-6	66-80	BC	0.52	1.89	0.09	0.11	0.91	10.83	11.74	8	0.10	0.02	4.5	3.9	3.9	---	---	---	0.30	0.85
Mandarin fine sand:																				
S19-4-1	0-4	A1	0.19	0.09	0.02	0.02	0.32	3.26	3.58	9	0.88	0.04	4.3	3.6	3.6	---	---	---	---	---
-2	4-25	E	0.02	0.02	0.01	0.00	0.05	0.42	0.47	11	0.10	0.01	5.6	4.6	5.0	---	---	---	---	---
-3	25-30	Bh1	0.23	0.07	0.02	0.01	0.26	13.42	13.68	2	1.17	0.02	4.6	4.6	4.5	0.90	0.03	0.32	0.11	0.26
-4	30-34	Bh2	0.03	0.02	0.01	0.00	0.06	6.58	6.64	1	0.64	0.02	5.0	4.6	4.7	0.54	0.02	0.21	0.08	0.16
-5	34-61	BC	0.03	0.02	0.02	0.00	0.07	4.28	4.35	2	0.38	0.02	4.8	4.7	4.8	---	---	---	---	---
-6	61-80	C	0.06	0.03	0.01	0.00	0.10	0.42	0.52	19	0.10	0.01	5.6	5.0	5.1	---	---	---	---	---

TABLE 16.--CHEMICAL ANALYSES OF SELECTED SOILS--Continued

Soil name and sample number	Depth	Horizon	Extractable bases: Ca	Extractable bases: Mg	Extractable bases: Na	Extractable bases: K	Extractable bases: Sum	Extractable acidity	Sum of cations	Base saturation	Organic carbon	Electrical conductivity	pH H_2O (1:1)	pH $CaCl_2$ 0.01M (1:2)	pH KCl 1N (1:1)	Pyrophosphate extractable: C	Pyrophosphate extractable: Fe	Pyrophosphate extractable: Al	Citrate-dithionite extractable: Fe	Citrate-dithionite extractable: Al
	In		----Milliequivalents/100 grams of soil-----							Pct	Pct	mmhos/cm				Pct	Pct	Pct	Pct	Pct
Meadowbrook sand:																				
S19-20-1	0-6	Ap	0.22	0.14	0.05	0.03	0.44	10.44	10.88	4	2.67	0.08	3.5	3.0	3.0	---	---	---	---	---
-2	6-17	E1	0.18	0.06	0.01	0.00	0.25	1.68	1.93	13	0.28	0.02	4.4	3.9	3.8	---	---	---	---	---
-3	17-26	E2	0.04	0.03	0.01	0.00	0.08	2.13	2.21	4	0.49	0.02	4.2	3.9	3.9	---	---	---	---	---
-4	26-32	E3	0.02	0.03	0.01	0.00	0.06	2.24	2.30	3	0.23	0.01	4.2	4.2	4.3	---	---	---	---	---
-5	32-43	E4	0.06	0.02	0.01	0.00	0.09	2.06	2.15	4	0.24	0.02	4.6	4.5	4.6	---	---	---	---	---
-6	43-65	E5	0.91	0.04	0.03	0.01	0.99	2.44	3.43	29	0.18	0.03	5.3	4.8	4.8	---	---	---	---	---
-7	65-80	Btg	13.75	0.33	0.06	0.23	14.37	12.20	26.57	54	0.68	1.16	3.5	3.6	3.3	---	---	---	0.22	0.04
Ortega fine sand:																				
S19-10-1	0-5	Ap	0.06	0.05	0.01	0.00	0.12	0.94	1.06	11	0.34	0.03	4.6	4.3	3.9	---	---	---	---	---
-2	5-43	C1	0.03	0.03	0.01	0.00	0.07	0.53	0.60	12	0.14	0.02	5.0	4.9	4.5	---	---	---	---	---
-3	43-63	C2	0.02	0.03	0.01	0.01	0.07	0.15	0.22	32	0.06	0.01	5.1	4.7	4.7	---	---	---	---	---
-4	63-80	Cg	0.04	0.02	0.00	0.00	0.06	0.00	0.06	100	0.04	0.01	4.9	4.8	4.8	---	---	---	---	---
Pelham fine sand:																				
S19-18-1	0-8	Ap	0.06	0.06	0.03	0.01	0.16	6.86	7.02	2	2.72	0.05	3.9	3.9	3.9	---	---	---	---	---
-2	8-31	E	0.03	0.03	0.02	0.00	0.08	4.01	4.09	2	0.82	0.03	4/0	4.1	4.3	---	---	---	---	---
-3	31-40	BE	0.08	0.08	0.02	0.00	0.18	4.21	4.39	4	0.83	0.02	4.4	4.0	4.2	---	---	---	0.15	0.04
-4	40-59	Btg1	0.02	0.06	0.02	0.00	0.10	4.62	4.72	2	1.02	0.02	4.0	3.9	4.1	---	---	---	0.29	0.05
-5	59-80	Btg2	0.06	0.09	0.03	0.01	0.19	2.38	2.57	7	0.33	0.02	4.0	3.6	3.5	---	---	---	0.06	0.02
Resota fine sand:																				
S19-3-1	0-3	Ap	0.14	0.14	0.05	0.02	0.35	2.87	3.22	11	1.00	0.07	4.1	3.6	3.8	---	---	---	---	---
-2	3-22	E	0.02	0.02	0.01	0.00	0.05	0.00	0.05	100	0.08	0.01	5.2	4.4	4.6	---	---	---	---	---
-3	22-44	Bw1	0.03	0.05	0.05	0.00	0.13	2.26	2.39	5	0.22	0.05	4.4	4.4	4.6	---	---	---	---	---
-4	44-58	Bw2	0.03	0.02	0.01	0.00	0.06	1.51	1.57	4	0.11	0.03	4.5	4.6	4.9	---	---	---	---	---
-5	58-80	C	0.02	0.01	0.01	0.00	0.04	0.26	0.30	13	0.10	0.01	5.8	5.1	5.1	---	---	---	---	---
Ridgewood sand:																				
S19-8-1	0-5	Ap	0.12	0.04	0.01	0.01	0.18	0.77	0.95	19	0.57	0.01	5.3	4.6	4.2	---	---	---	---	---
-2	5-21	C1	0.04	0.02	0.01	0.00	0.07	0.34	0.41	17	0.27	0.01	5.1	4.7	4.7	---	---	---	---	---
-3	21-34	C2	0.04	0.02	0.01	0.00	0.07	0.00	0.07	100	0.15	0.01	5.2	4.7	4.9	---	---	---	---	---
-4	34-64	C3	0.02	0.01	0.01	0.01	0.04	0.00	0.04	100	0.11	0.00	5.5	4.9	5.1	---	---	---	---	---
-5	64-80	C4	0.07	0.03	0.01	0.00	0.11	0.00	0.11	100	0.09	0.00	5.6	5.0	5.0	---	---	---	---	---

TABLE 16.--CHEMICAL ANALYSES OF SELECTED SOILS--Continued

Soil name and sample number	Depth	Horizon	Extractable bases					Extractable acidity	Sum of cations	Base saturation	Organic carbon	Electrical conductivity	pH			Pyrophosphate extractable			Citrate-dithionite extractable	
			Ca	Mg	Na	K	Sum						H_2O (1:1)	$CaCl_2$ 0.01M (1:2)	KCl 1N (1:1)	C	Fe	Al	Fe	Al
	In		----Milliequivalents/100 grams of soil-----							Pct	Pct	mmhos/cm				Pct	Pct	Pct	Pct	Pct
Sapelo fine sand:																				
S19-16-1	0-7	Ap	0.11	0.07	0.05	0.01	0.24	8.37	8.61	3	1.32	0.60	3.5	2.9	3.2	---	---	---	---	---
-2	7-12	E	0.06	0.04	0.03	0.00	0.13	3.82	3.95	3	0.51	0.03	4.4	3.4	3.4	---	---	---	---	---
-3	12-19	Bh	0.03	0.03	0.02	0.01	0.10	8.50	8.60	1	1.22	0.03	4.1	3.8	4.2	0.60	0.02	0.12	0.06	0.09
-4	19-49	E'	0.04	0.03	0.01	0.00	0.08	0.95	1.03	8	0.20	0.02	4.4	4.3	4.6	---	---	---	---	---
-5	49-54	Btg1	0.06	0.04	0.02	0.00	0.12	2.92	3.04	4	0.34	0.02	4.1	4.0	4.3	---	---	---	0.06	0.03
-6	54-80	Btg2	0.05	0.04	0.03	0.01	0.13	2.84	2.97	4	0.23	0.02	4.3	4.0	4.3	---	---	---	0.04	0.03
Scranton fine sand:																				
S19-7-1	0-7	A	0.04	0.03	0.04	0.01	0.12	7.37	7.49	2	1.30	0.06	4.0	3.5	3.4	---	---	---	---	---
-2	7-22	Cg1	0.05	0.04	0.01	0.00	0.10	3.87	3.97	3	0.63	0.02	4.8	4.0	3.9	---	---	---	---	---
-3	22-40	Cg2	0.05	0.03	0.01	0.00	0.09	1.02	1.11	8	0.65	0.02	4.9	4.5	4.2	---	---	---	---	---
-4	40-80	Cg3	0.03	0.02	0.01	0.00	0.06	1.56	1.62	4	0.46	0.02	4.7	4.6	4.6	---	---	---	---	---
Scranton fine sand:																				
S19-17-1	0-6	Ap	0.10	0.05	0.03	0.01	0.19	7.87	8.06	2	2.79	0.05	3.6	3.5	3.5	---	---	---	---	---
-2	6-20	AC	0.19	0.06	0.01	0.00	0.26	5.04	5.30	5	1.48	0.03	3.9	3.9	3.9	---	---	---	---	---
-3	20-39	C1	0.04	0.03	0.01	0.00	0.08	2.90	2.98	3	0.62	0.02	4.4	4.4	4.6	---	---	---	---	---
-4	39-57	C2	0.05	0.04	0.02	0.00	0.11	1.63	1.74	6	0.29	0.02	4.4	4.2	4.5	---	---	---	---	---
-5	57-80	C3	0.04	0.07	0.02	0.01	0.14	2.60	2.74	6	0.19	0.02	4.0	4.0	4.3	---	---	---	---	---
Stilson fine sand:																				
S19-14-1	0-7	Ap	0.20	0.10	0.06	0.02	0.38	6.29	6.58	6	1.14	0.05	3.9	3.5	3.3	---	---	---	---	---
-2	7-13	E1	0.03	0.01	0.02	0.00	0.06	2.32	2.38	3	0.27	0.02	4.5	4.4	4.7	---	---	---	---	---
-3	13-32	E2	0.01	0.01	0.02	0.00	0.04	1.00	1.04	4	0.06	0.02	4.5	4.4	4.7	---	---	---	---	---
-4	32-43	Bt	0.45	0.28	0.04	0.01	0.78	1.92	1.98	39	0.05	0.02	4.7	4.5	4.7	---	---	---	0.53	0.11
-5	43-59	Btv	0.60	0.66	0.06	0.03	1.26	4.32	5.58	23	0.08	0.03	4.7	4.3	4.3	---	---	---	0.96	0.16
-6	59-80	B't	0.20	0.35	0.06	0.03	0.55	5.52	6.07	9	0.02	0.02	4.5	4.2	4.2	---	---	---	0.43	0.09
Tooles loamy sand:																				
S19-21-1	0-7	Ap	0.95	0.08	0.06	0.03	1.12	3.94	5.06	22	1.18	0.05	4.0	3.8	3.7	---	---	---	---	---
-2	7-17	E1	1.57	0.05	0.05	0.00	1.67	2.28	3.95	42	0.35	0.04	4.9	4.5	4.5	---	---	---	---	---
-3	17-24	E2	3.85	0.09	0.05	0.01	4.00	2.16	6.16	65	0.50	0.04	5.9	5.7	5.9	---	---	---	---	---
-4	24-30	Btg1	12.50	0.23	0.12	0.03	12.88	3.93	16.81	77	0.30	0.09	7.0	6.4	6.8	---	---	---	0.75	0.05
-5	30-50	Btg2	15.75	0.25	0.11	0.04	16.15	5.48	21.63	75	0.20	0.07	6.8	6.6	6.6	---	---	---	1.31	0.04

TABLE 17.--CLAY MINERALOGY OF SELECTED SOILS

Soil name and sample number	Depth	Horizon	Clay minerals: Montmorillonite	14-angstrom intergrade	Kaolinite	Quartz
	In		Pct	Pct	Pct	Pct
Albany sand:						
S19-13-1	0-6	Ap	16	24	33	27
-3	10-16	Bw	0	41	38	21
-6	56-80	Btg	14	25	54	7
Blanton fine sand:						
S19-15-1	0-6	Ap	14	25	43	18
-5	72-80	Bt	7	13	72	8
Chaires sand:						
S19-5-1	0-6	Ap	0	10	16	74
-3	14-19	Bh1	0	29	20	51
-6	33-40	Btg1	32	24	29	15
-8	56-80	Btg3	37	16	29	18
Corolla sand:						
S19-9-1	0-6	A	21	15	28	36
-3	32-34	Ab	34	26	30	10
-5	57-80	Cg2	30	11	11	48
Hurricane fine sand:						
S19-11-1	0-5	Ap	24	20	16	40
-4	14-32	Bw2	21	50	19	10
-7	74-80	Bh	18	13	55	14
Kershaw sand:						
S19-2-1	0-5	A	19	36	13	32
-4	58-80	C3	0	14	9	77
Kureb fine sand:						
S19-1-1	0-4	A	0	25	15	60
-5	49-80	C/Bh2	0	20	11	69
Leefield sand:						
S19-12-1	0-7	Ap	0	32	51	17
-5	31-50	Btv	0	23	72	5
-6	50-80	Btg	0	13	81	6
Leon sand:						
S19-6-1	0-8	Ap	0	18	10	72
-3	22-40	Bh1	0	34	16	50
-5	72-80	C	0	22	60	18
Lynchburg sand:						
S19-22-1	0-5	Ap	0	31	54	15
-4	18-32	Bt2	0	18	74	8
-6	66-80	BC	14	5	72	9
Mandarin fine sand:						
S19-4-1	0-4	Ap	0	37	16	47
-3	25-30	Bh1	0	32	14	54
-6	61-80	C	0	33	13	54
Meadowbrook sand:						
S19-20-1	0-6	Ap	0	0	12	88
-4	26-32	E3	0	35	13	52
-7	65-80	Btg	44	7	45	4

TABLE 17.--CLAY MINERALOGY OF SELECTED SOILS--Continued

Soil name and sample number	Depth	Horizon	Clay minerals			
			Montmo-rillonite	14-angstrom intergrade	Kaolinite	Quartz
	In		Pct	Pct	Pct	Pct
Ortega fine sand:						
S19-10-1	0-5	Ap	0	52	35	13
-4	63-80	Cg	12	43	33	12
Pelham fine sand:						
S19-18-1	0-8	Ap	9	24	66	7
-3	31-40	Btg1	8	28	47	20
-5	59-80	Btg2	14	12	56	8
Resota fine sand:						
S19-3-1	0-3	Ap	0	31	21	48
-3	22-44	Bw1	0	59	17	24
-5	58-80	C	0	41	17	42
Ridgewood sand:						
S19-8-1	0-5	Ap	0	53	14	33
-5	64-80	C4	18	45	12	25
Sapelo fine sand:						
S19-16-1	0-7	Ap	0	17	28	55
-3	12-19	Bh	0	39	20	41
-6	54-80	Btg2	0	24	69	7
Scranton fine sand:						
S19-7-1	0-7	A	0	27	16	57
-4	46-80	Cg3	0	34	51	15
Scranton fine sand:						
S19-17-1	0-6	Ap	0	24	23	53
-5	57-80	C3	14	13	66	7
Stilson fine sand:						
S19-14-1	0-7	Ap	0	37	45	18
-4	32-43	Bt	0	26	66	8
-6	59-80	B't	0	13	80	7
Tooles loamy sand:						
S19-21-1	0-7	Ap	43	24	15	18
-4	24-30	Btg1	84	0	12	4
-5	30-50	Btg2	86	0	10	4

TABLE 18.--ENGINEERING INDEX TEST DATA

(Tests were performed by the Florida Department of Transportation (FDOT) in cooperation with the U.S. Bureau of Public Roads, in accordance with standard procedures of the American Association of State Highway and Transportation Officials [AASHTO]. See "Soil Series and Their Morphology" for the location of pedons sampled. NP means nonplastic)

Soil name, report number, horizon, and depth in inches	FDOT report number	Classification: AASHTO[1]	Classification: Unified	Mechanical analysis[3] Percentage passing sieve--[2] No. 4	No. 10	No. 40	No. 200	Percentage smaller than-- .05 mm	.02 mm	.005 mm	.002 mm	Liquid limit	Plasticity index	Moisture density[4] Maximum dry density	Optimum moisture
												Pct		Lb/cu ft	Pct
Albany fine sand:															
(S87FL-37-13)															
E2------- 29-56	14	A-2-4	SP-SM	100	100	88	11	8	4	3	2	NP	NP	106.3	13.4
Btg------ 56-80	15	A-2-4	SM	100	100	87	18	16	13	12	11	NP	NP	114.4	11.4
Blanton fine sand:															
(S87FL-37-15)															
E2------- 31-61	17	A-3	SP	100	100	93	4	4	4	1	1	NP	NP	102.2	13.5
Chaires sand:															
(S87FL-37-05)															
E'------- 24-33	5	A-3	SP-SM	100	100	84	5	5	4	3	2	NP	NP	104.3	13.3
Corolla sand:															
(S86FL-37-09)															
Cg------- 34-80	10	A-3	SP	100	100	95	0	0	0	0	0	NP	NP	95.6	12.7
Hurricane sand:															
(S87FL-37-11)															
Bw2------ 14-32	12	A-3	SP-SM	100	100	94	6	6	5	3	3	NP	NP	102.6	13.4
Kershaw sand:															
(S86FL-37-2)															
C1------- 5-39	2	A-3	SP	100	100	96	1	1	1	1	1	NP	NP	101.2	12.2
Kureb fine sand:															
(S86FL-37-1)															
C/Bh1---- 26-49	1	A-3	SP	100	100	94	2	2	2	1	1	NP	NP	99.9	13.6
Leefield sand:															
(S87FL-37-13)															
Btv------ 31-50	13	A-2-4	SC-SM	100	100	86	28	25	21	18	15	22	7	118.8	11.3
Leon sand:															
(S86FL-37-6)															
Bh1------ 22-40	7	A-3	SP-SM	100	100	84	5	5	4	3	3	NP	NP	117.6	13.7
Mandarin fine sand:															
(S86FL-37-4)															
BC------- 34-61	4	A-3	SP SM	100	100	98	7	7	7	7	4	NP	NP	106.4	13.6

See footnotes at end of table.

TABLE 18.--ENGINEERING INDEX TEST DATA--Continued

Soil name, report number, horizon, and depth in inches	FDOT report number	Classification: AASHTO[1]	Classification: Unified	Mechanical analysis[3]: Percentage passing sieve--[2] No. 4	No. 10	No. 40	No. 200	Mechanical analysis[3]: Percentage smaller than-- .05 mm	.02 mm	.005 mm	.002 mm	Liquid limit	Plasticity index	Moisture density[4]: Maximum dry density	Moisture density[4]: Optimum moisture
												Pct		Lb/cu ft	Pct
Meadowbrook sand: (S87FL-37-20) Btg------ 65-80	20	A-6	SC	100	100	63	37	32	23	18	15	39	27	108.2	17.8
Ortega fine sand: (S86FL-37-10) C2------- 5-43	11	A-3	SP-SM	100	100	92	6	6	4	3	3	NP	NP	105.3	13.1
Resota fine sand: (S86FL-37-03) Bw1------ 22-44	3	A-3	SP	100	100	98	4	4	3	2	2	NP	NP	102.4	11.5
Ridgewood sand: (S86FL-37-08) C3------- 34-64	9	A-3	SP-SM	100	100	94	5	5	4	3	2	NP	NP	101.3	14.6
Sapelo fine sand: (S87FL-37-16) Btg2----- 54-80	18	A-2-4	SP-SM	100	100	77	13	12	10	8	8	NP	NP	113.5	10.9
Scranton fine sand:[5] (S86FL-37-07) Cg2------ 22-46	8	A-3	SP-SM	100	100	92	5	5	4	3	2	NP	NP	103.0	13.9
Scranton fine sand:[5] (S87FL-37-17) Cg3------ 57-80	19	A-3	SP-SM	100	100	89	10	11	8	7	6	NP	NP	108.3	11.9
Stilson fine sand: (S87FL-37-14) Btv------ 43-59	16	A-4	SC	100	100	99	37	32	25	22	21	26	8	114.6	14

1 Based on AASHTO designation H145-73.

2 Sieve information is slightly different for some horizons than in the Engineering Index Properties table. Most of the differences are within the parameters of normal laboratory error.

3 Mechanical analyses according to AASHTO designation T88-78. Results by this procedure differ somewhat from results obtained by the soil survey procedure of the Soil Conservation Service (SCS). In the AASHTO procedure, the fine material is analyzed by the hydrometer method and the various grain-size fractions are calculated on the basis of all the material, including that coarser than 2 millimeters in diameter. In the SCS soil survey procedure, the fine material is analyzed by the pipette method and the material coarser than 2 millimeters in diameter is excluded from the calculations of grain-size fractions. The mechanical analyses used in this table are not suitable for use in naming soil textural classes.

4 Based on AASHTO designation T99-74.

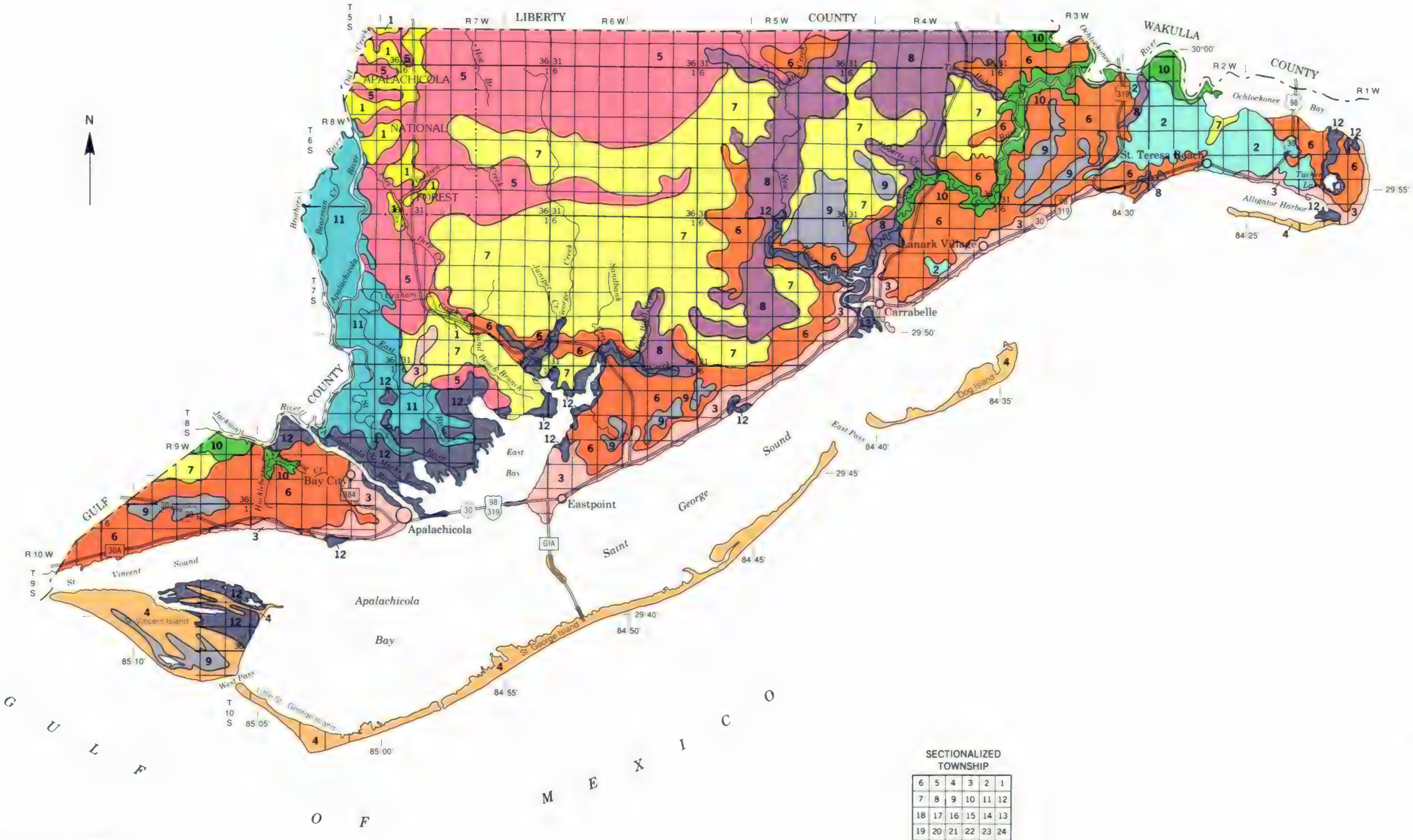
5 Pedon is located 2,100 feet south and 700 feet east of the northwest corner of sec. 8, T. 7 S., R. 7 W.

TABLE 19.--CLASSIFICATION OF THE SOILS

Soil name	Family or higher taxonomic class
Albany	Loamy, siliceous, thermic Grossarenic Paleudults
Aquents	Aquents
Bayvi	Sandy, siliceous, thermic Cumulic Haplaquolls
Blanton	Loamy, siliceous, thermic Grossarenic Paleudults
Bohicket	Fine, mixed, nonacid, thermic Typic Sulfaquents
Bonsai	Sandy, siliceous, thermic Aeric Fluvaquents
Brickyard	Fine, montmorillonitic, nonacid, thermic Aeric Fluvaquents
Chaires	Sandy, siliceous, thermic Alfic Haplaquods
Chowan	Fine-silty, mixed, nonacid, thermic Thapto-Histic Fluvaquents
Corolla	Thermic, uncoated Aquic Quartzipsamments
Dirego	Sandy or sandy-skeletal, siliceous, euic, thermic Terric Sulfihemists
Dorovan	Dysic, thermic Typic Medisaprists
Duckston	Siliceous, thermic Typic Psammaquents
Harbeson	Loamy, siliceous, thermic Grossarenic Umbraqualfs
Hurricane	Sandy, siliceous, thermic Grossarenic Entic Haplohumods
Kenner	Euic, thermic Fluvaquentic Medisaprists
Kershaw	Thermic, uncoated Typic Quartzipsamments
Kureb	Thermic, uncoated Spodic Quartzipsamments
Leefield	Loamy, siliceous, thermic Arenic Plinthaquic Paleudults
Leon	Sandy, siliceous, thermic Aeric Haplaquods
Lynchburg	Fine-loamy, siliceous, thermic Aeric Paleaquults
Lynn Haven	Sandy, siliceous, thermic Typic Haplaquods
Mandarin	Sandy, siliceous, thermic Typic Haplohumods
Maurepas	Euic, thermic Typic Medisaprists
Meadowbrook	Loamy, siliceous, thermic Grossarenic Ochraqualfs
Meggett	Fine, mixed, thermic Typic Albaqualfs
Newhan	Thermic, uncoated Typic Quartzipsamments
Ortega	Thermic, uncoated Typic Quartzipsamments
Pamlico	Sandy or sandy-skeletal, siliceous, dysic, thermic Terric Medisaprists
Pelham	Loamy, siliceous, thermic Arenic Paleaquults
Pickney	Sandy, siliceous, thermic Cumulic Humaquepts
Plummer	Loamy, siliceous, thermic Grossarenic Paleaquults
Resota	Thermic, uncoated Spodic Quartzipsamments
Ridgewood	Thermic, uncoated Aquic Quartzipsamments
Rutlege	Sandy, siliceous, thermic Typic Humaquepts
Sapelo	Sandy, siliceous, thermic Ultic Haplaquods
Scranton	Siliceous, thermic Humaqueptic Psammaquents
Stilson	Loamy, siliceous, thermic Arenic Plinthic Paleudults
Surrency	Loamy, siliceous, thermic Arenic Umbric Paleaquults
Tisonia	Clayey, montmorillonitic, euic, thermic Terric Sulfihemists
Tooles	Loamy, siliceous, thermic Arenic Albaqualfs
Udorthents	Udorthents
Wehadkee	Fine-loamy, mixed, nonacid, thermic Typic Fluvaquents

* U.S. G.P.O.:1994-300-438:80513/SCS

NRCS Accessibility Statement



SOIL LEGEND*

SOILS OF THE LOW UPLANDS AND HIGH FLATWOODS

1 Albany-Blanton-Stilson

SOILS OF THE SAND RIDGES AND COASTAL ISLANDS

2 Kershaw-Ortega-Ridgewood

3 Mandarin-Resota-Leon

4 Corolla-Duckston-Newhan

SOILS OF THE FLATWOODS

5 Plummer-Surrency-Pelham

6 Leon-Scranton-Lynn Haven

SOILS OF THE SLOUGHS, LOW FLATWOODS, AND DEPRESSIONS

7 Scranton-Rutlege

8 Meadowbrook-Tooles-Harbeson

9 Pickney-Pamlico-Dorovan

SOILS OF THE RIVER FLOOD PLAINS

10 Pamlico-Pickney-Maurepas

11 Chowan-Brickyard-Wehadkee

SOILS OF THE TIDAL MARSHES

12 Bohicket-Tisonia-Dirego

* The units on this legend are described in the text under the heading "General Soil Map Units."

Compiled 1992

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
UNIVERSITY OF FLORIDA
INSTITUTE OF FOOD AND AGRICULTURAL SCIENCES
AGRICULTURAL EXPERIMENT STATIONS
SOIL SCIENCE DEPARTMENT
FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES

GENERAL SOIL MAP
FRANKLIN COUNTY, FLORIDA

Scale 1:253,440

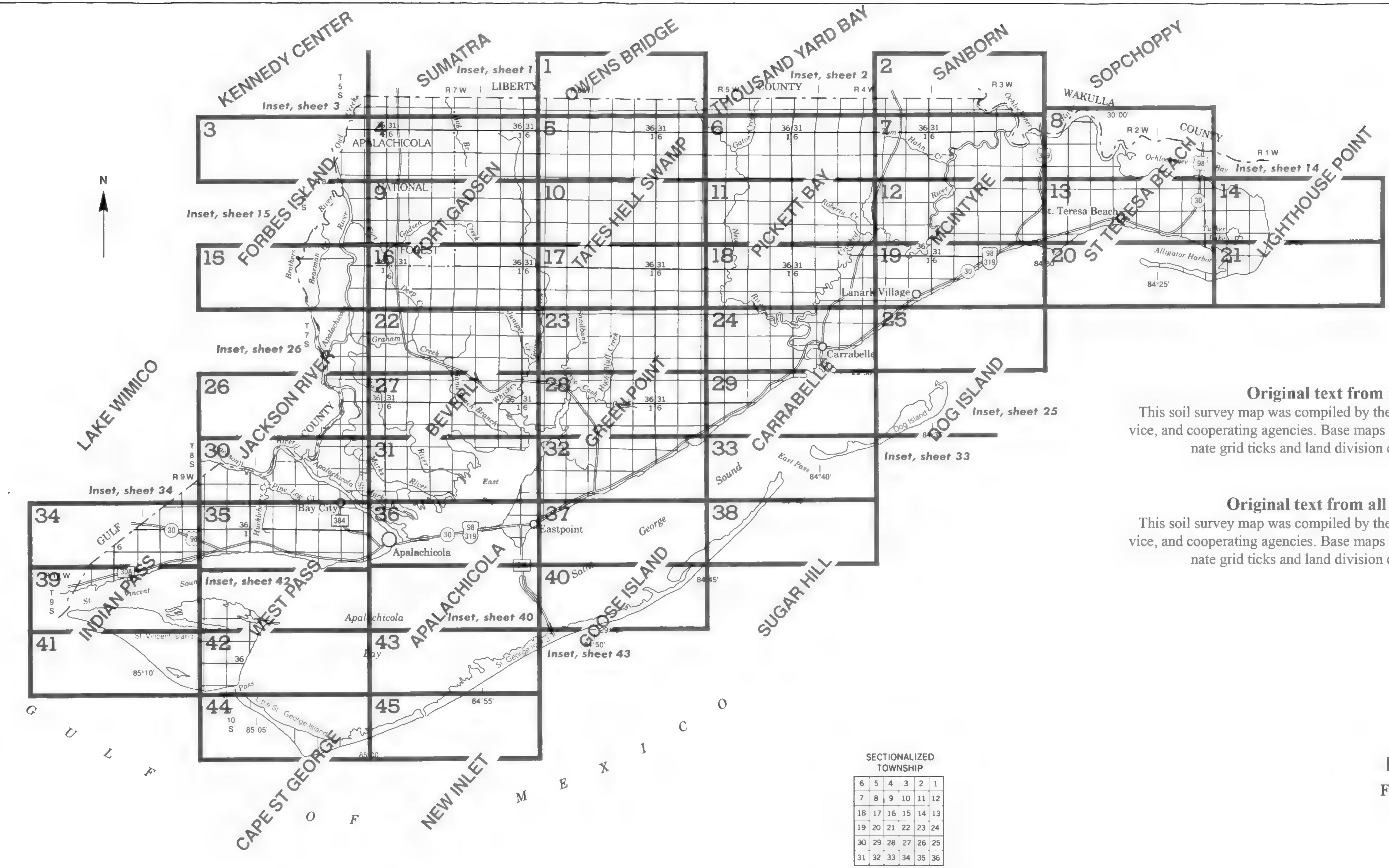
1 0 1 2 3 4 Mi

1 0 4 8 Km

SECTIONALIZED TOWNSHIP

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.



Original text from map sheets 30, 39, and 41 read:
This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1983 -1985 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

Original text from all other individual map sheets read:
This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1983 -1985 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

SECTIONALIZED TOWNSHIP

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

INDEX TO MAP SHEETS

FRANKLIN COUNTY, FLORIDA

Scale 1:253,440

1 0 1 2 3 4 Mi

1 0 4 8 Km

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

UNIVERSITY OF FLORIDA
INSTITUTE OF FOOD AND AGRICULTURAL SCIENCES
AGRICULTURAL EXPERIMENT STATIONS
SOIL SCIENCE DEPARTMENT
FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES

SOIL LEGEND

The publication symbols are numeric. Soil map unit names without a slope phase are either nearly level or are miscellaneous areas

NUMERICAL LIST

SYMBOL	NAME
2	Albany fine sand
3	Beaches
4	Dirego and Bayvi soils, tidal
5	Aquents, nearly level
6	Blanton fine sand, 0 to 5 percent slopes
7	Bohicket and Tisonia soils, tidal
8	Ridgewood sand, 0 to 5 percent slopes
9	Chaires sand
10	Corolla sand, 0 to 5 percent slopes
11	Dorovan-Pamlico complex, depressional
12	Lynchburg loamy fine sand
13	Hurricane sand
14	Harbeson mucky loamy sand, depressional
15	Ortega fine sand, 0 to 5 percent slopes
16	Bonsai mucky fine sand, frequently flooded
17	Kershaw sand, 2 to 5 percent slopes
18	Kershaw sand, 5 to 12 percent slopes
19	Kureb fine sand, 3 to 8 percent slopes
20	Lynn Haven sand
21	Leefield sand
22	Leon sand
23	Maurepas muck, frequently flooded
24	Mandarin fine sand
25	Chowan, Brickyard, and Kenner soils, frequently flooded
26	Duckston sand, occasionally flooded
27	Pelham fine sand
28	Plummer fine sand
29	Resota fine sand, 0 to 5 percent slopes
30	Rutlege loamy fine sand, depressional
31	Rutlege fine sand
32	Sapelo fine sand
33	Scranton fine sand
34	Surrency fine sand
35	Stilson fine sand
36	Pickney-Pamlico complex, depressional
37	Tooles-Meadowbrook complex, depressional
38	Meadowbrook sand
39	Scranton sand, slough
40	Newhan-Corolla complex, rolling
41	Pamlico-Pickney complex, frequently flooded
42	Meadowbrook, Meggett, and Tooles soils, frequently flooded
43	Meadowbrook sand, slough
44	Tooles sand
45	Wehadkee-Meggett complex, frequently flooded
46	Duckston-Rutlege-Corolla complex
47	Duckston Bohicket-Corolla complex
48	Udorthents, nearly level

ALHABETICAL LIST

SYMBOL	NAME
2	Albany fine sand
5	Aquents, nearly level
3	Beaches
6	Blanton fine sand, 0 to 5 percent slopes
7	Bohicket and Tisonia soils, tidal
16	Bonsai mucky fine sand, frequently flooded
9	Chaires sand
25	Chowan, Brickyard, and Kenner soils, frequently flooded
10	Corolla sand, 0 to 5 percent slopes
4	Dirego and Bayvi soils, tidal
11	Dorovan-Pamlico complex, depressional
47	Duckston-Bohicket-Corolla complex
46	Duckston-Rutlege-Corolla complex
26	Duckston sand, occasionally flooded
14	Harbeson mucky loamy sand, depressional
13	Hurricane sand
17	Kershaw sand, 2 to 5 percent slopes
18	Kershaw sand, 5 to 12 percent slopes
19	Kureb fine sand, 3 to 8 percent slopes
21	Leefield sand
22	Leon sand
12	Lynchburg loamy fine sand
20	Lynn Haven sand
24	Mandarin fine sand
23	Maurepas muck, frequently flooded
42	Meadowbrook, Meggett, and Tooles soils, frequently flooded
38	Meadowbrook sand
43	Meadowbrook sand, slough
40	Newhan-Corolla complex, rolling
15	Ortega fine sand, 0 to 5 percent slopes
41	Pamlico-Pickney complex, frequently flooded
27	Pelham fine sand
36	Pickney-Pamlico complex, depressional
28	Plummer fine sand
29	Resota fine sand, 0 to 5 percent slopes
8	Ridgewood sand, 0 to 5 percent slopes
31	Rutlege fine sand
30	Rutlege loamy fine sand, depressional
32	Sapelo fine sand
33	Scranton fine sand
39	Scranton sand, slough
35	Stilson fine sand
34	Surrency fine sand
37	Tooles-Meadowbrook complex, depressional
44	Tooles sand
48	Udorthents, nearly level
45	Wehadkee-Meggett complex, frequently flooded

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

CULTURAL FEATURES

BOUNDARIES
- National, state, or province
- County or parish
- Minor civil division
- Reservation (national forest or park, state forest or park, and large airport)
- Land grant
- Limit of soil survey (label)
- Field sheet matchline and neatline

AD HOC BOUNDARY (label)
- Small airport, airfield, park, oilfield cemetery, or flood pool

STATE COORDINATE TICK

LAND DIVISION CORNER (sections and land grants)

ROADS
- Divided (median shown if scale permits)
- Other roads
- Trail

ROAD EMBLEM & DESIGNATIONS
- Interstate
- Federal
- State
- County, farm or ranch (Other)

RAILROAD Name only

POWER TRANSMISSION LINE (normally not shown)

PIPE LINE (normally not shown)

FENCE (normally not shown)

LEVEES
- Without road
- With road
- With railroad

DAMS
- Large (to scale)
- Medium or Small

PITS
- Gravel pit
- Mine or quarry

MISCELLANEOUS CULTURAL FEATURES
- Farmstead, house (omit in urban area)
- Church Outside Urban Areas
- School
- Indian mound (label) — Indian Mound
- Located object (label) — Tower
- Tank (label) — Gas
- Wells, oil or gas
- Windmill
- Kitchen midden

WATER FEATURES

DRAINAGE
- Perennial, double line
- Perennial, single line
- Intermittent
- Drainage end
- Canals or ditches
- Double line (label) — CANAL
- Drainage and/or irrigation

LAKES, PONDS AND RESERVOIRS
- Perennial
- Intermittent

MISCELLANEOUS WATER FEATURES
- Marsh or swamp
- Spring
- Well, artesian
- Well, irrigation
- Wet spot

SPECIAL SYMBOLS FOR SOIL SURVEY

SOIL DELINEATIONS AND SYMBOLS — 5 46

ESCARPMENTS
- Bedrock (points down slope)
- Other than bedrock (points down slope)

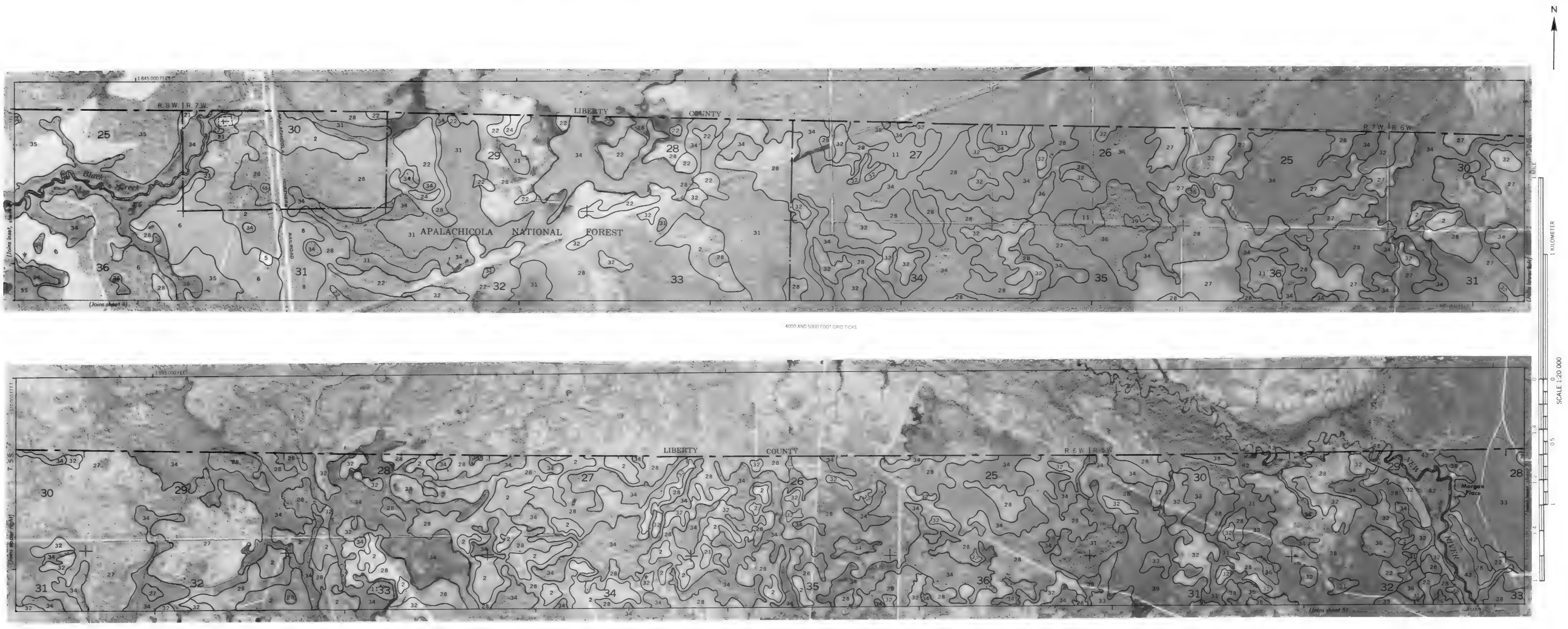
SHORT STEEP SLOPE

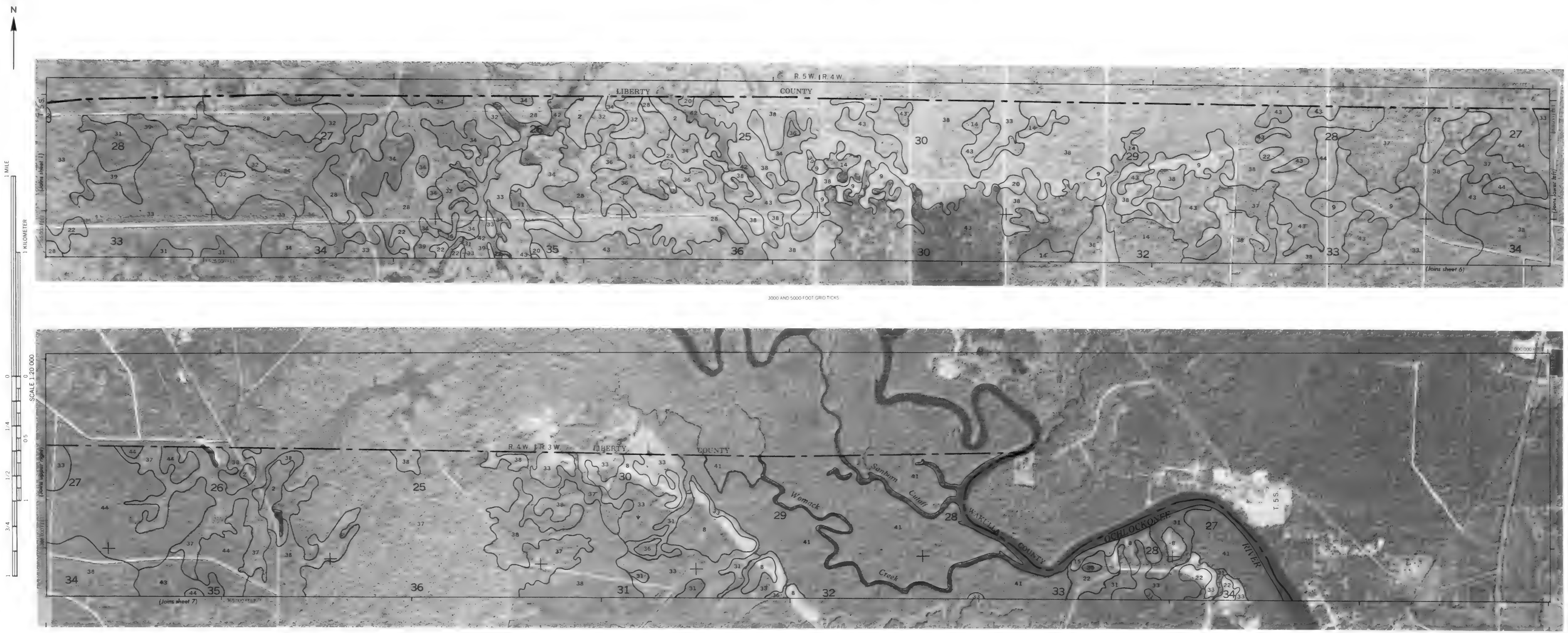
GULLY

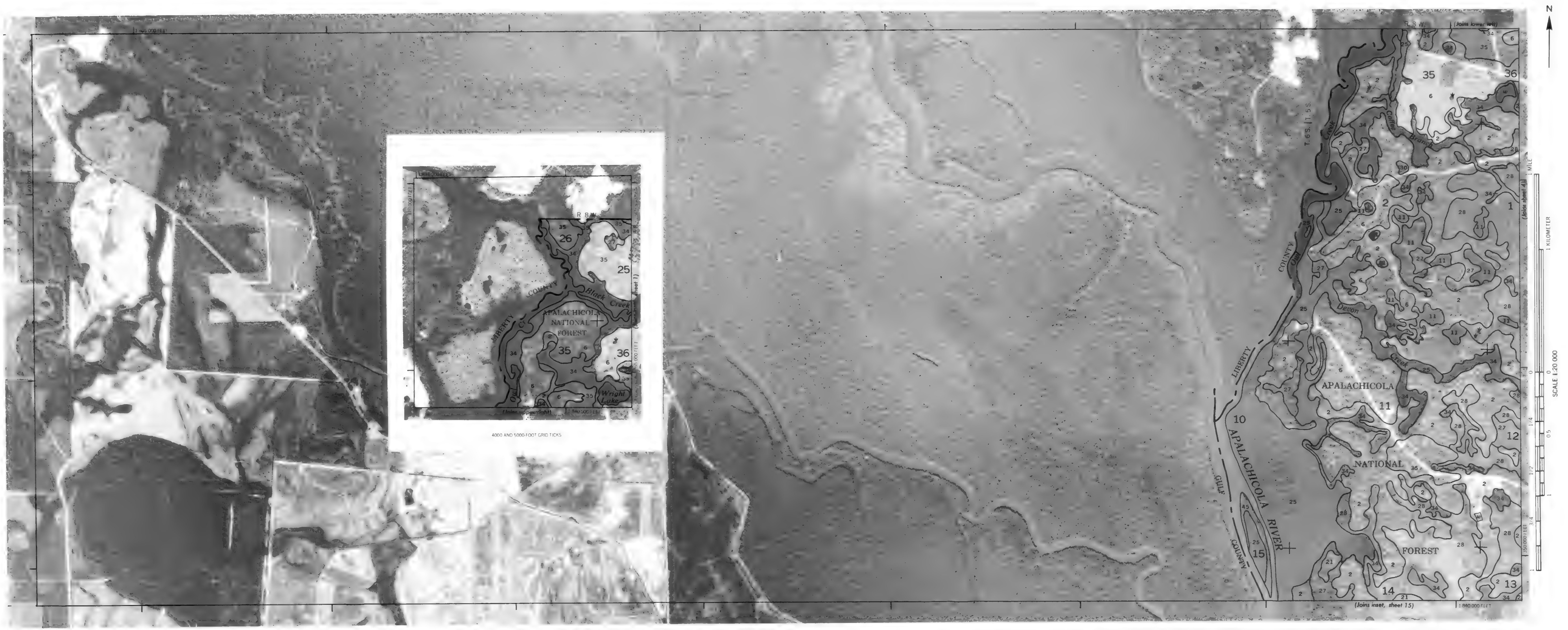
DEPRESSION OR SINK

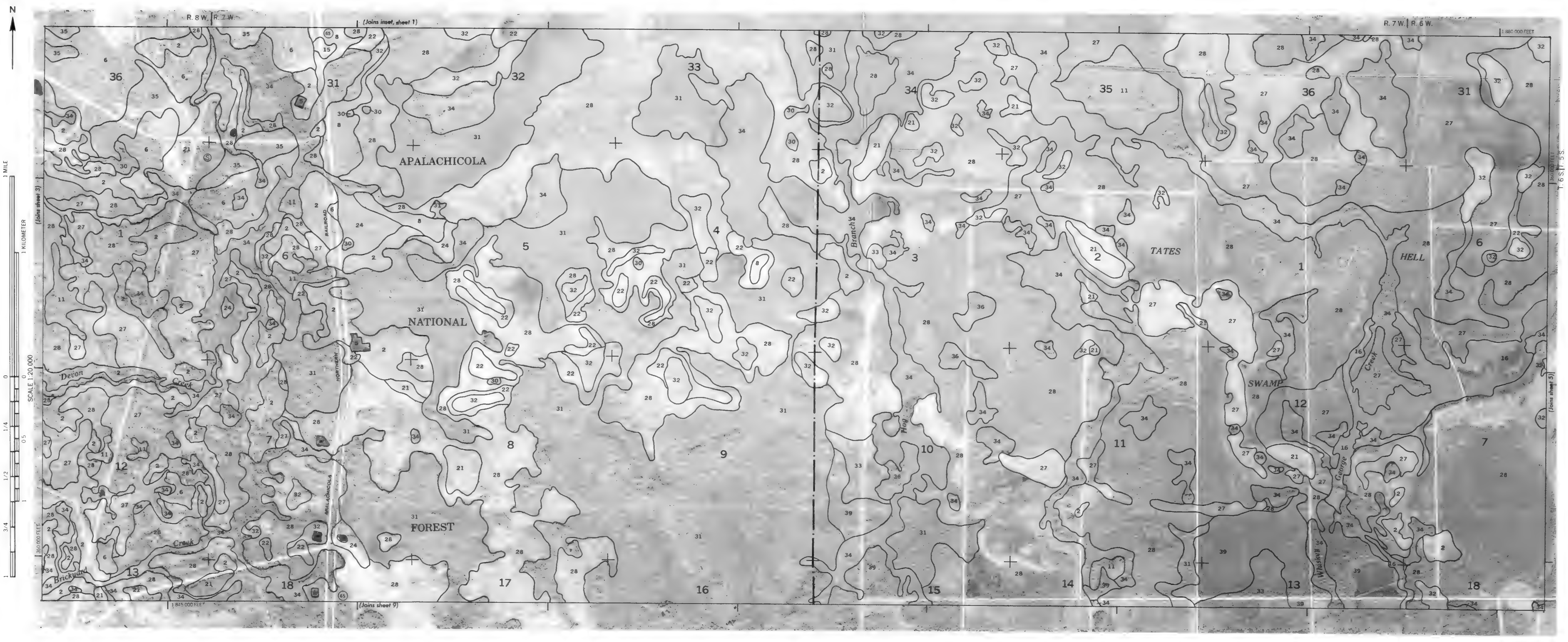
SOIL SAMPLE (normally not shown)

MISCELLANEOUS
- Blowout
- Clay spot
- Gravelly spot
- Gumbo, slick or scabby spot (sodic)
- Dumps and other similar non soil areas
- Prominent hill or peak
- Rock outcrop (includes sandstone and shale)
- Saline spot
- Sandy spot
- Severely eroded spot
- Slide or slip (tips point upslope)
- Stony spot, very stony spot


1
N
LIBERTY COUNTY
APALACHICOLA NATIONAL FOREST
Black Creek
RAILROAD
R 8 W
R 7 W
R 6 W
R 5 W
T 5 S
Morgan Place
(Joins sheet 4)
(Joins sheet 5)
4000 AND 5000 FOOT GRID TICKS
1 MILE
1 KILOMETER
SCALE 1:20 000


N
R. 5 W.
R. 4 W.
LIBERTY
COUNTY
(Joins sheet 1)
(Joins sheet 6)
3000 AND 5000 FOOT GRID TICKS
R. 4 W.
R. 3 W.
LIBERTY
COUNTY
Womack
Creek
Sanborn
Cutoff
WAKULLA
COUNTY
OCHLOCKONEE
RIVER
T. 5 S.
(Joins sheet 7)
1 MILE
1 KILOMETER
SCALE 1:20 000


3
N
APALACHICOLA
NATIONAL
FOREST
APALACHICOLA RIVER
LIBERTY
COUNTY
GULF
COUNTY
Owl Creek
Devon Creek
Black Creek
Wright Lake
T. 6 S.
T. 5 S.
R. 8 W.
(Joins inset, sheet 15)
4000 AND 5000-FOOT GRID TICKS
1 MILE
1 KILOMETER
SCALE 1:20 000

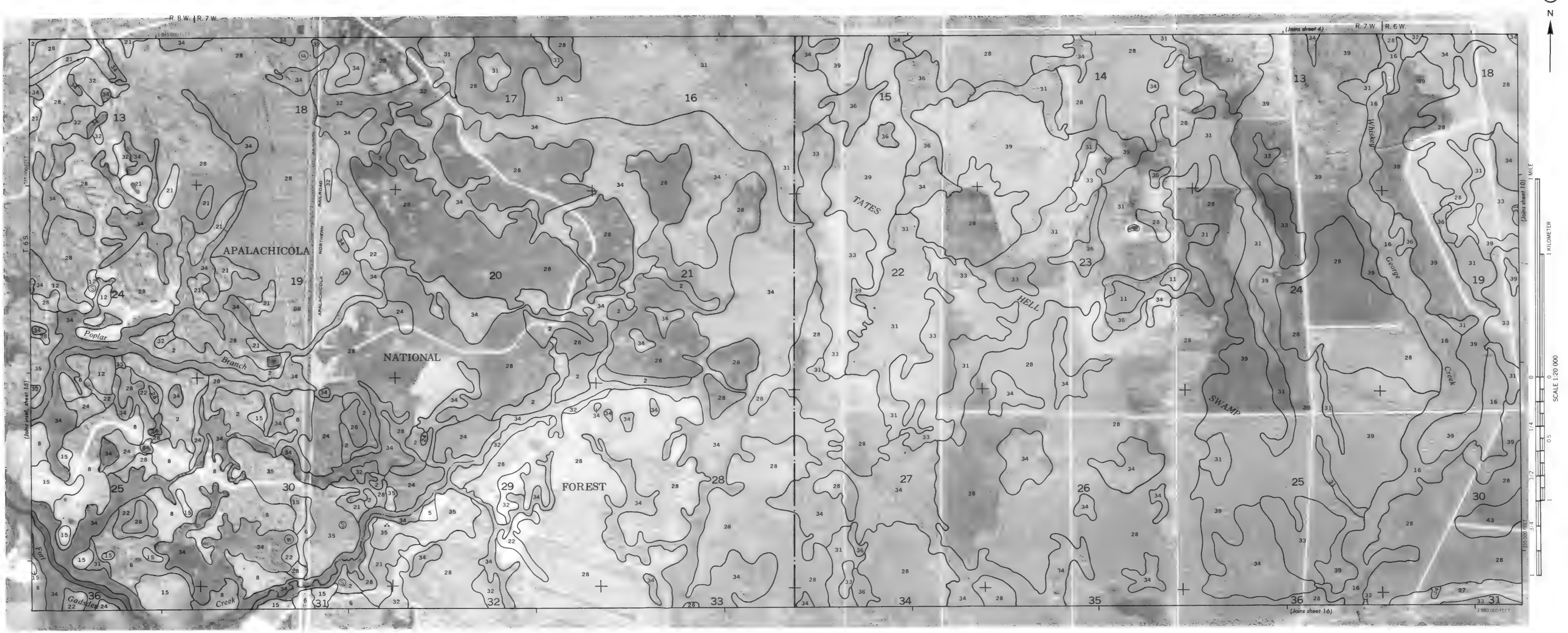

N
1 MILE
1 KILOMETER
SCALE 1:20 000
R. 8 W. | R. 7 W.
R. 7 W. | R. 6 W.
(Joins inset, sheet 1)
(Joins sheet 3)
(Joins sheet 5)
(Joins sheet 9)
APALACHICOLA
NATIONAL
FOREST
TATES
HELL
SWAMP
Devon Creek
Brickyard Creek
Hog Branch
George Creek
Whiskey George
NORTHERN RAILROAD


N
(Joins sheet 1)
(Joins sheet 4)
(Joins sheet 6)
(Joins sheet 10)
R. 6 W. | R. 5 W.
T. 6 S. | T. 5 S.
1 885 000 FEET
1 920 000 FEET
TATES
HELL
SWAMP
NEW RIVER
1 KILOMETER
1 MILE
SCALE 1:20 000

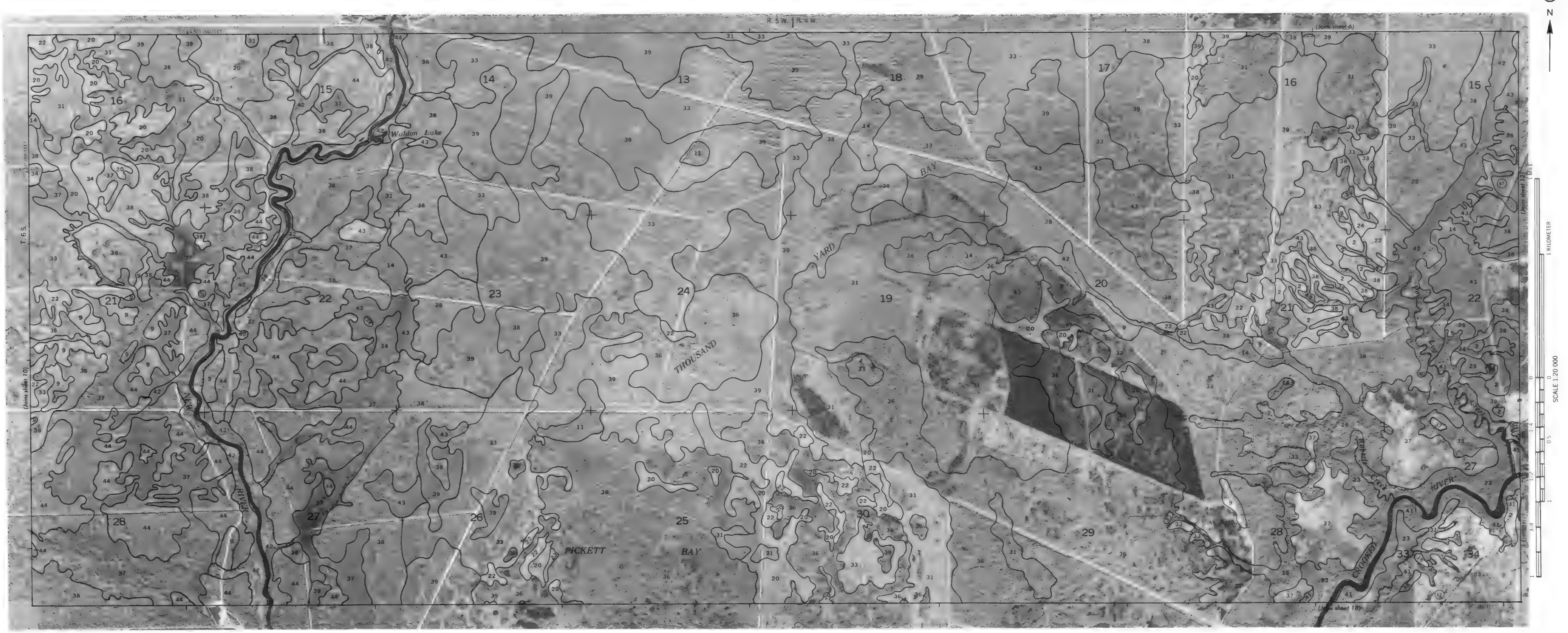

6
N
(Joins inset, sheet 2)
R. 5 W. | R. 4 W.
T. 6 S. | T. 5 S.
1 MILE
1 KILOMETER
SCALE 1:20 000
0
1/4
1/2
3/4
1
0.5
NEW RIVER
Gully Branch
THOUSAND YARD BAY
(Joins sheet 7)
(Joins sheet 11)

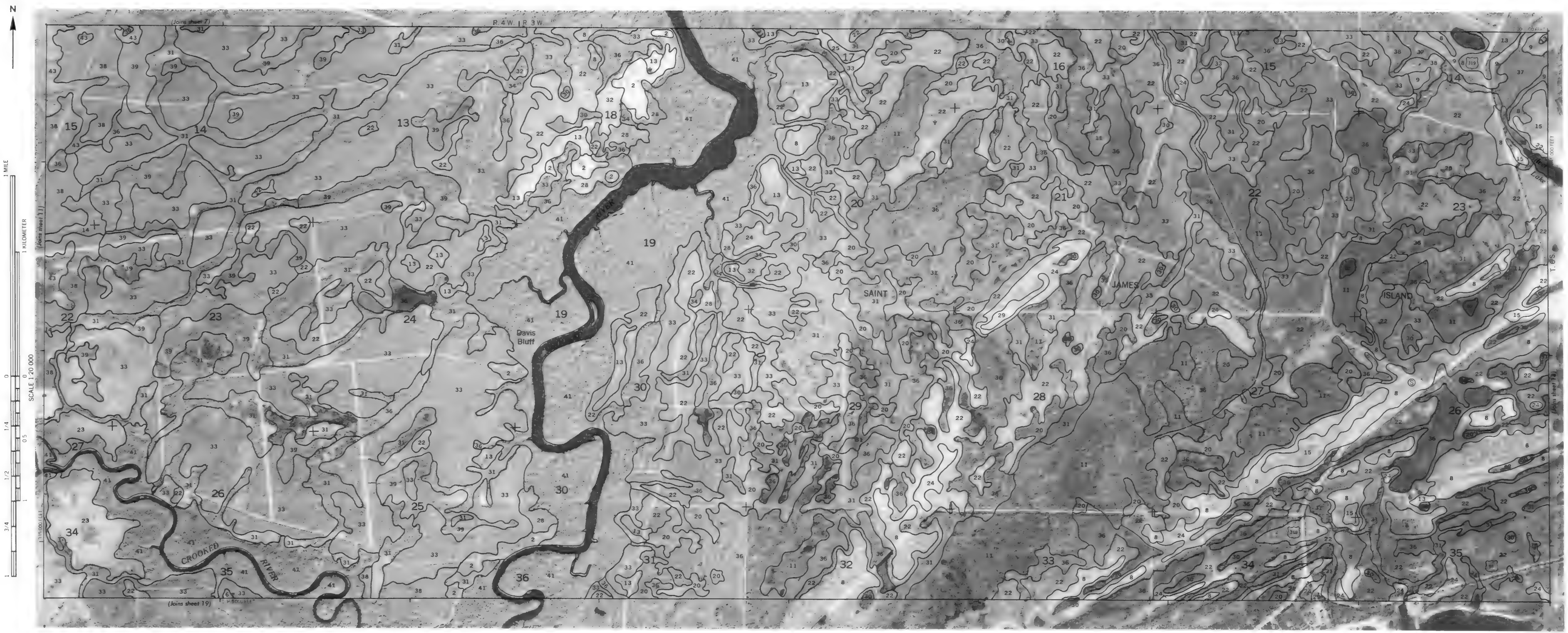

7
N
(Joins sheet 2)
R. 4 W. | R. 3 W.
T. 6 S. | T. 5 S.
(Joins sheet 6)
(Joins sheet 8)
(Joins sheet 12)
Lewis Bluff
McIntyre
OCHLOCKONEE RIVER
WAKULLA COUNTY
CROOKED RIVER
Tom Hohn Creek
Brandy Creek
1 MILE
1 KILOMETER
SCALE 1:20 000


8
N
WAKULLA
OCHLOCKONEE
RIVER
Bear
Creek
OCHLOCKONEE
RIVER
Turtle
Island
OCHLOCKONEE
BAY
WAKULLA
COUNTY
Granit Point
Metcalf Point
(Joins sheet 13)
(Joins inset, sheet 14)
SCALE 1:20 000
1 MILE
1 KILOMETER

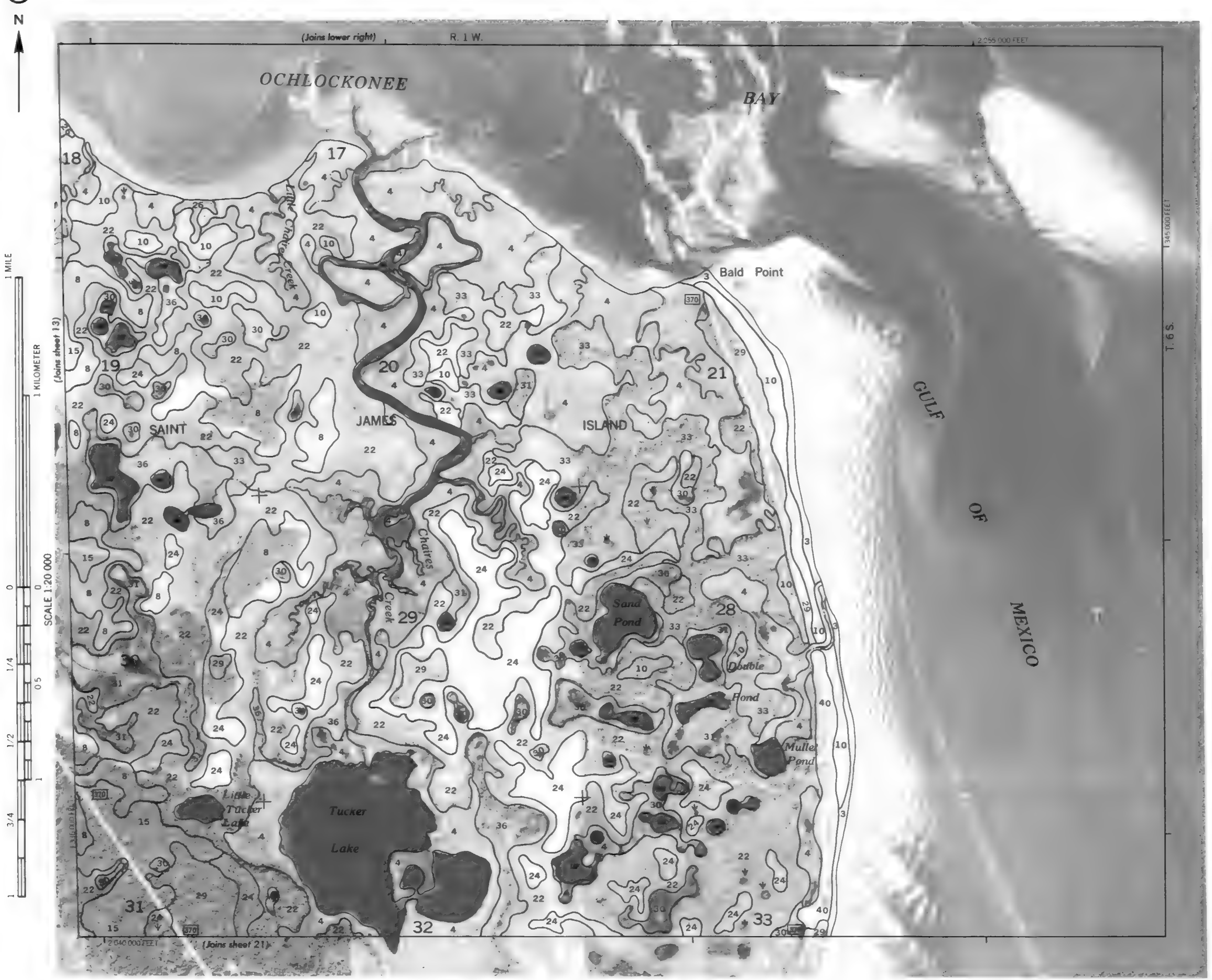

R. 8 W. | R. 7 W.
(Joins sheet 4)
R. 7 W. | R. 6 W.
T. 6 S.
(Joins inset, sheet 15)
(Joins sheet 10)
(Joins sheet 16)
APALACHICOLA
NATIONAL
FOREST
APALACHICOLA NORTHERN RAILROAD
Poplar
Branch
Fort Gadsden
Creek
TATES
HELL
SWAMP
Whiskey
George
Creek
N
SCALE 1:20 000
MILE
1 KILOMETER


N
(Joins sheet 5)
(Joins sheet 9)
(Joins sheet 11)
(Joins sheet 17)
R. 6 W. | R. 5 W.
T. 6 S.
TATES
HELL
SWAMP
1 MILE
1 KILOMETER
SCALE 1:20 000

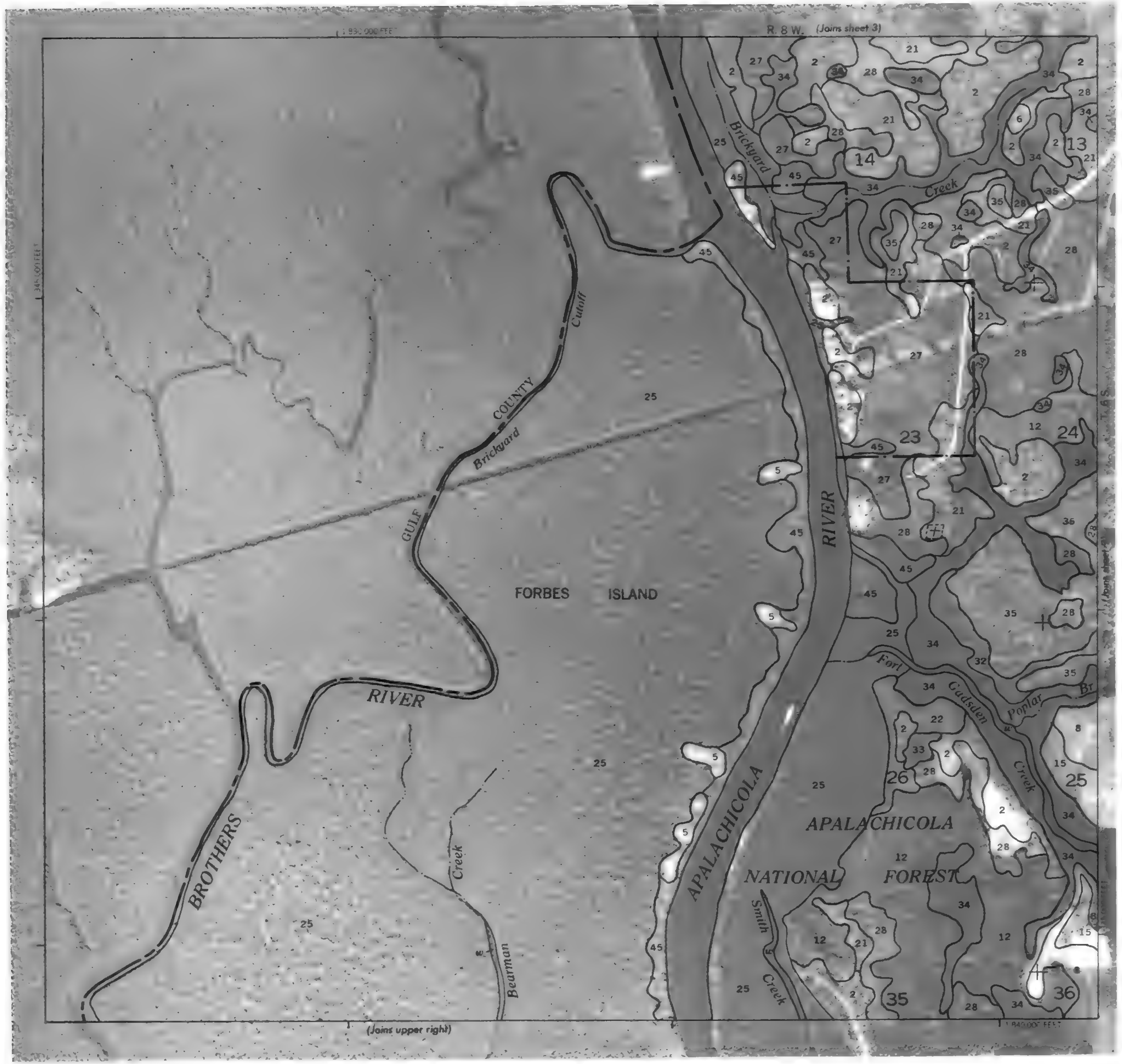

N
R.5W. R.4W.
(Joins sheet 6)
(Joins sheet 10)
(Joins sheet 12)
(Joins sheet 18)
T.6S.
Waldon Lake
NEW RIVER
THOUSAND YARD BAY
PICKETT BAY
CROOKED RIVER
1 MILE
1 KILOMETER
SCALE 1:20 000


N
(Joins sheet 7)
R 4 W | R 3 W
(Joins sheet 11)
(Joins sheet 19)
(Joins sheet 13)
Davis Bluff
SAINT
JAMES
ISLAND
CROOKED
RIVER
1 MILE
1 KILOMETER
SCALE 1:20 000
T. 6 S.

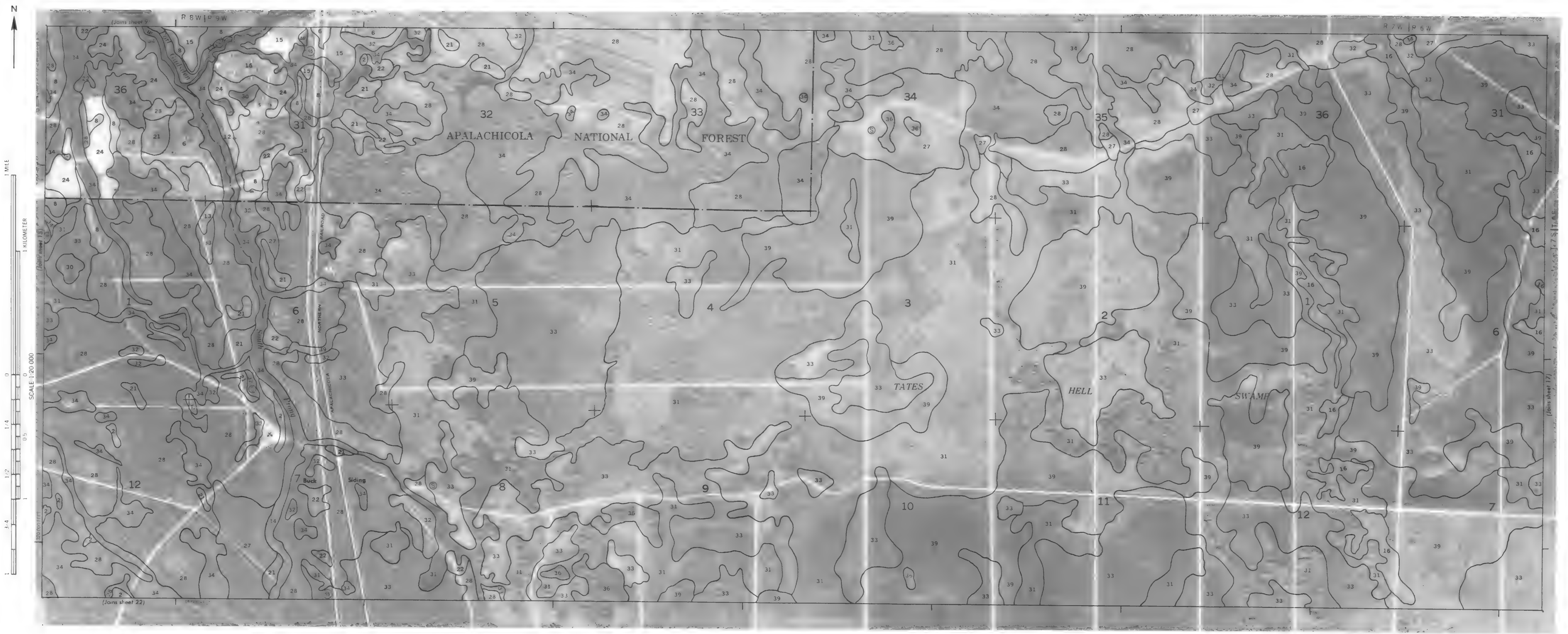

13
N
R. 3 W. | R. 2 W.
R. 2 W. | R. 1 W.
(Joins sheet 8)
(Joins sheet 12)
(Joins sheet 14)
(Joins sheet 20)
2 035 000 FEET
Silver Lake
Metcalf
Lakes
GULF
OF
MEXICO
ALLIGATOR
HARBOR
1 MILE
1 KILOMETER
SCALE 1:20 000


N
1 MILE
1 KILOMETER
SCALE 1:20 000
(Joins lower right)
R. 1 W.
2 055 000 FEET
OCHLOCKONEE
BAY
Bald Point
370
GULF
OF
MEXICO
T. 6 S.
(Joins sheet 13)
SAINT
JAMES
ISLAND
Little Chaires Creek
Chaires Creek
Sand Pond
Double Pond
Mullet Pond
Little Tucker Lake
Tucker Lake
2 040 000 FEET
(Joins sheet 21)


2 055 000 FEET
(Joins sheet 8)
WAKULLA
R. 1 W.
COUNTY
OCHLOCKONEE
BAY
2 040 000 FEET
(Joins upper left)

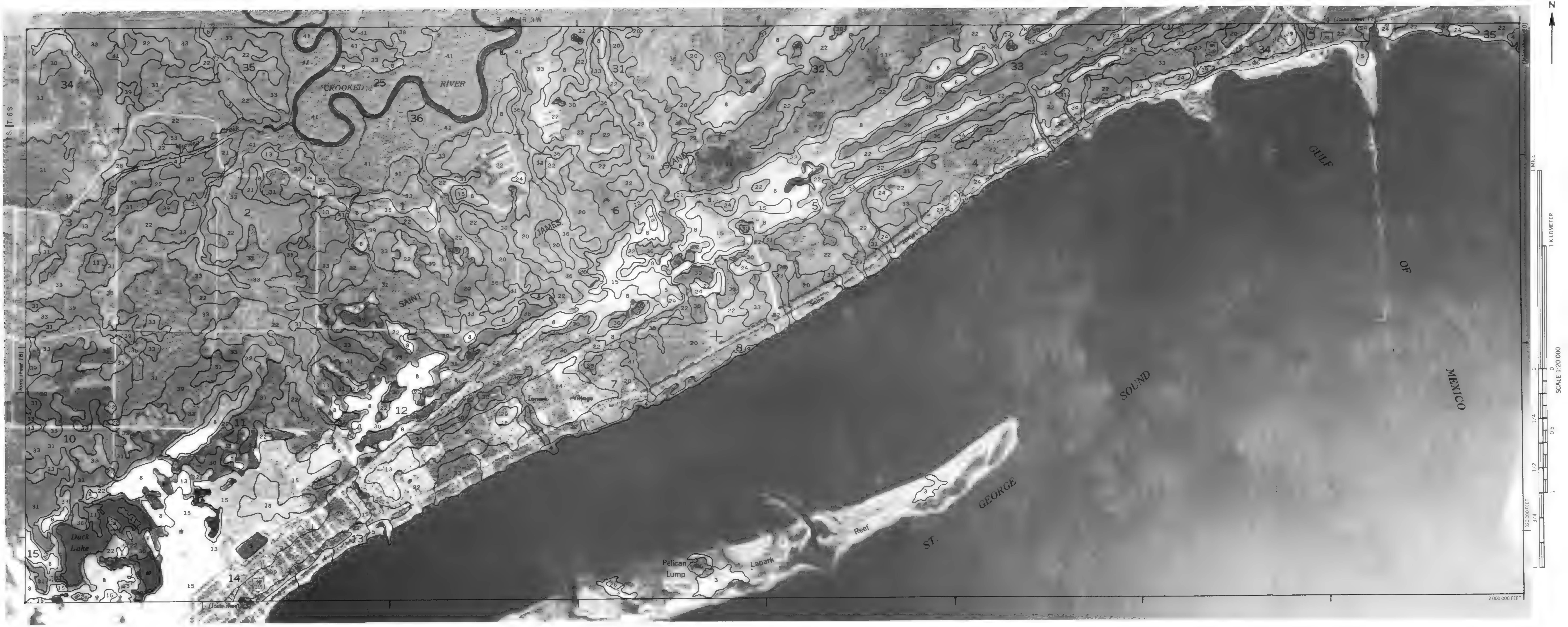

R. 8 W.
(Joins sheet 3)
(Joins upper right)
FORBES ISLAND
APALACHICOLA RIVER
APALACHICOLA NATIONAL FOREST
BROTHERS RIVER
GULF COUNTY
Brickyard Cutoff
Brickyard Creek
Fort Gadsden Creek
Smith Creek
Bearman Creek
Poplar Br.

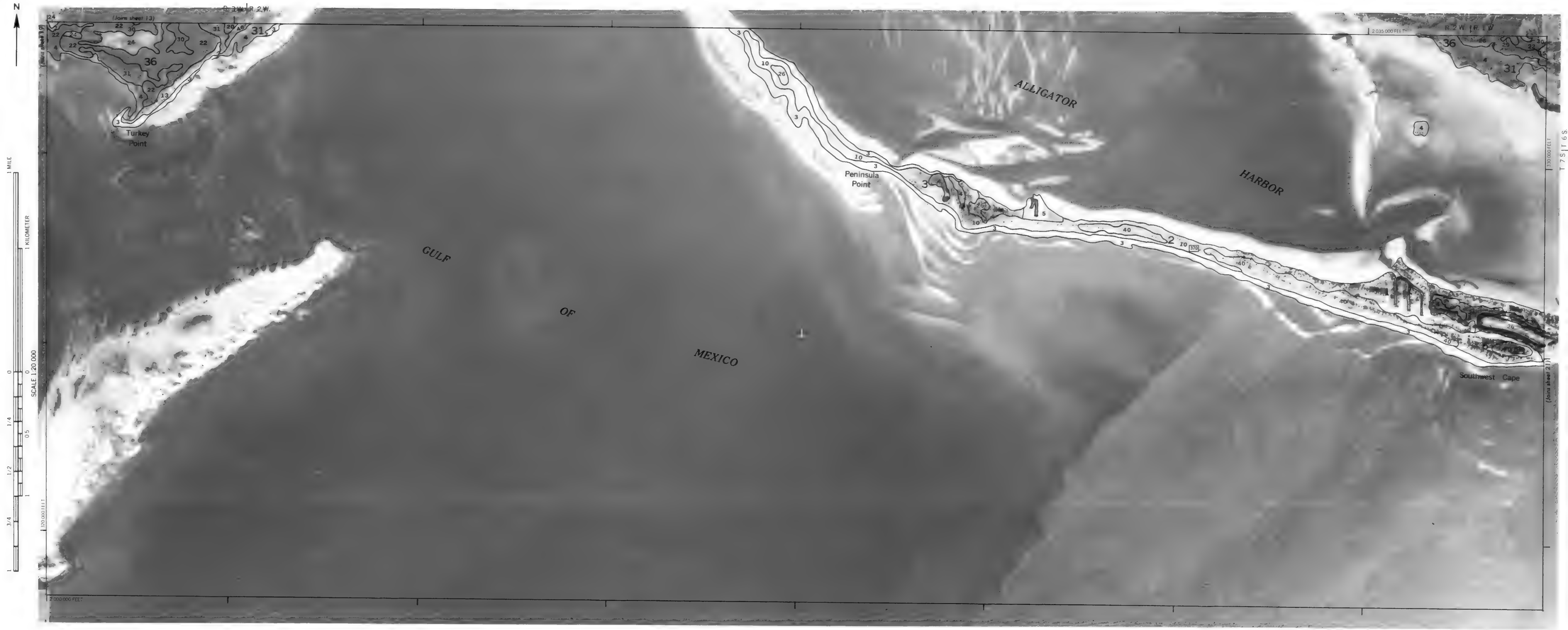

R. 8 W.
(Joins lower left)
(Joins inset, sheet 26)
FORBES ISLAND
APALACHICOLA RIVER
APALACHICOLA NATIONAL FOREST
GULF COUNTY
BROTHERS RIVER
Bearman Creek
Smokehouse Creek
Harrison Creek
Smith Creek
Bloody Bluff Island
N
1 MILE
1 KILOMETER
SCALE 1:20 000

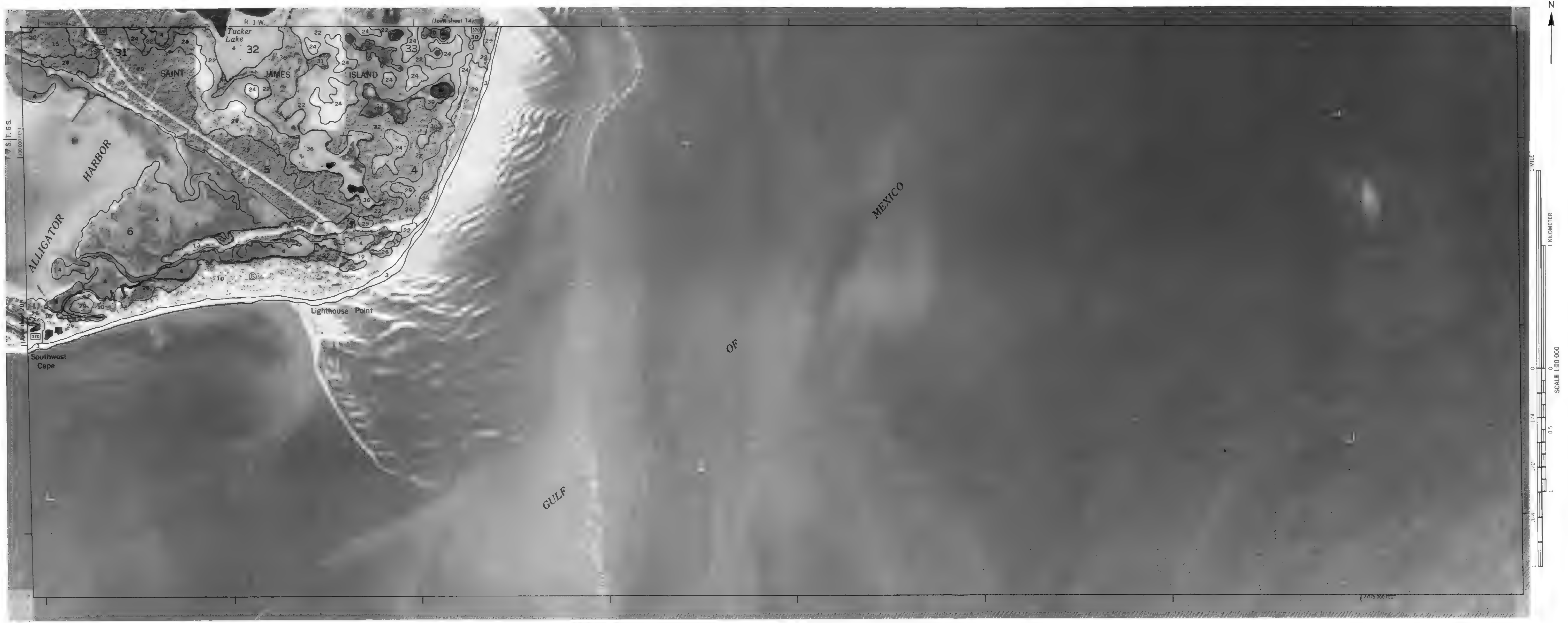

16
N
1 MILE
1 KILOMETER
SCALE 1:20 000
(Joins sheet 9)
R 8 W | R 9 W
R 7 W | R 8 W
APALACHICOLA NATIONAL FOREST
TATES HELL SWAMP
NORTHERN RAILROAD
APALACHICOLA
Buck Siding
(Joins sheet 22)
(Joins sheet 17)


R. 6 W. | R. 5 W.
(Joins sheet 10)
(Joins sheet 23)
(Joins sheet 16)
(Joins sheet 18)
T. 7 S. | T. 6 S.
TATES
HELL
SWAMP
Whiskey
George
Creek
N
1 MILE
1 KILOMETER
SCALE 1:20 000

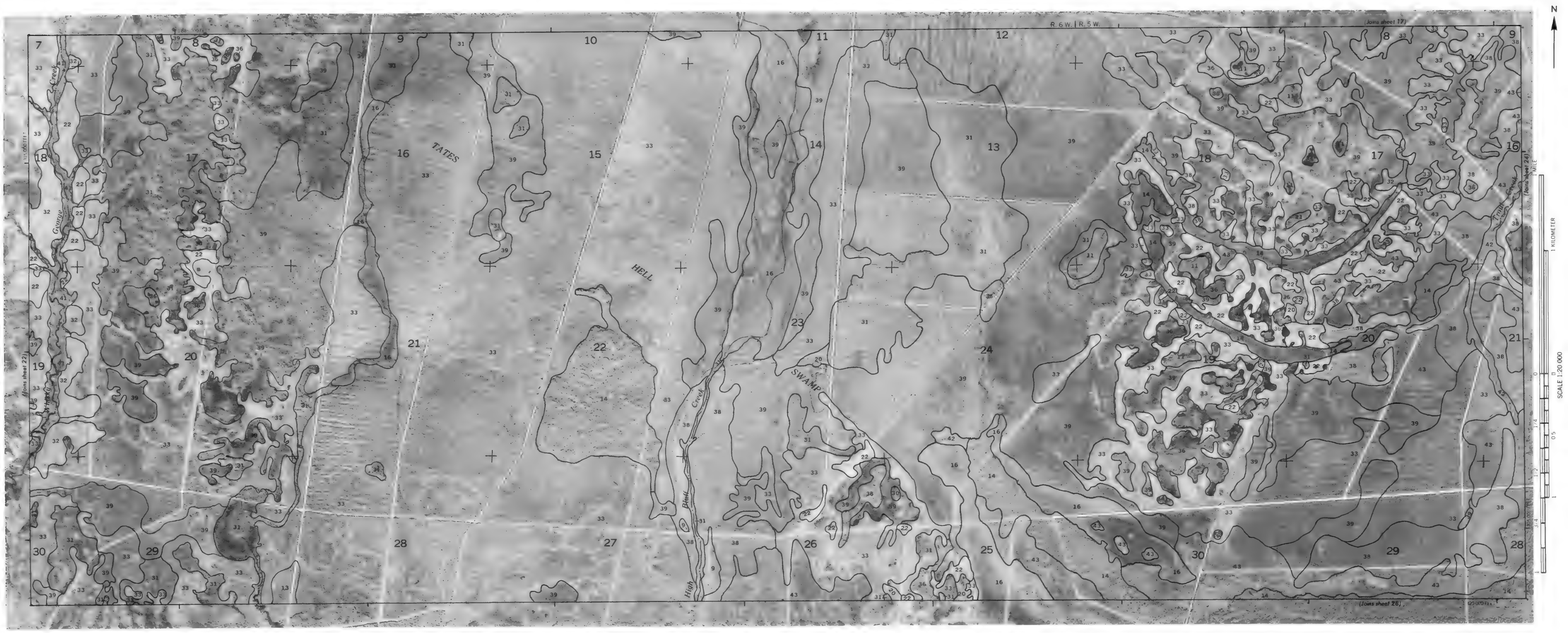

18
N
1 MILE
1 KILOMETER
SCALE 1:20 000
(Joins sheet 11)
(Joins sheet 24)
R. 5 W. | R. 4 W.
PICKETT
BAY
NEW
RIVER
CROOKED
RIVER
Cypress
Slough
Harbeson
City
Thompson
Cutoff
Saw
Bluff
SAINT
JAMES
ISLAND

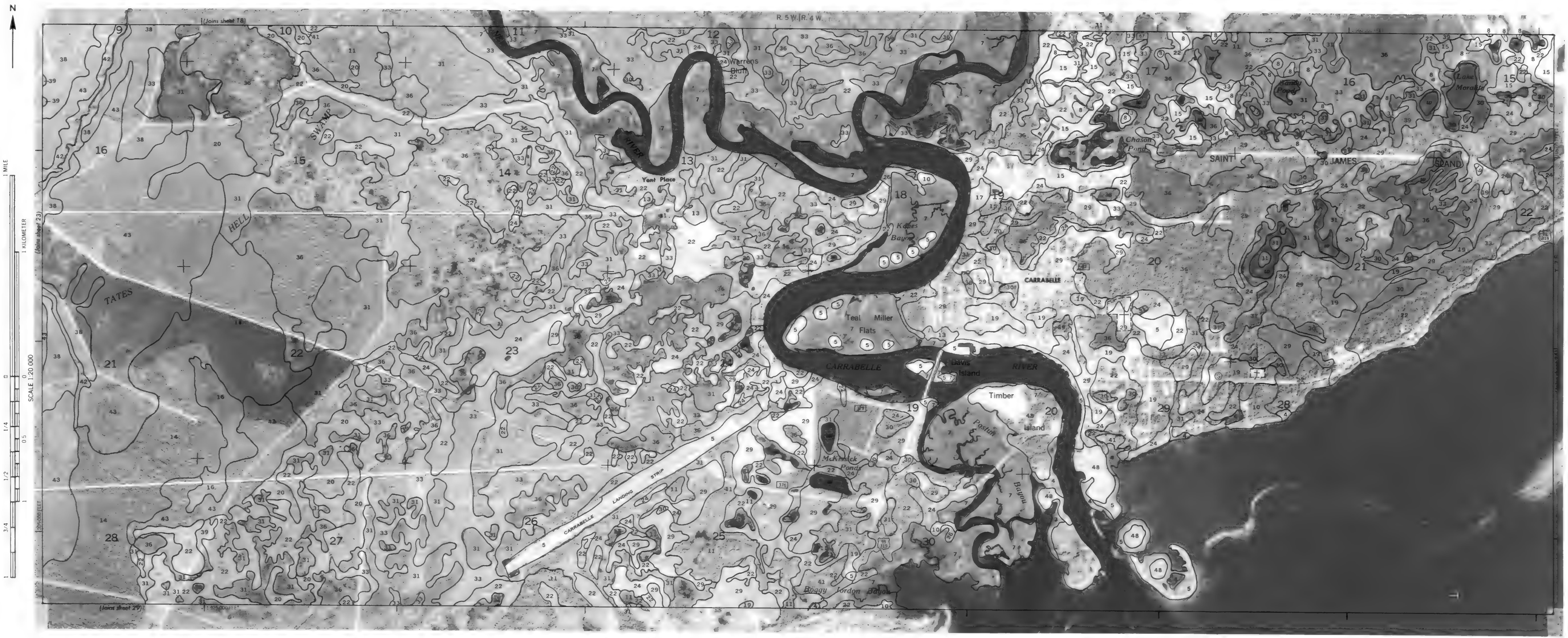

19
N
CROOKED
RIVER
SAINT
JAMES
ISLAND
Lanark
Village
Duck
Lake
GULF
OF
MEXICO
SOUND
ST.
GEORGE
Reef
Pelican
Lump
Lanark
R. 4 W. | R. 3 W.
T. 6 S.
(Joins sheet 18)
(Joins sheet 17)
1 MILE
1 KILOMETER
SCALE 1:20 000
2 000 000 FEET
320 000 FEET

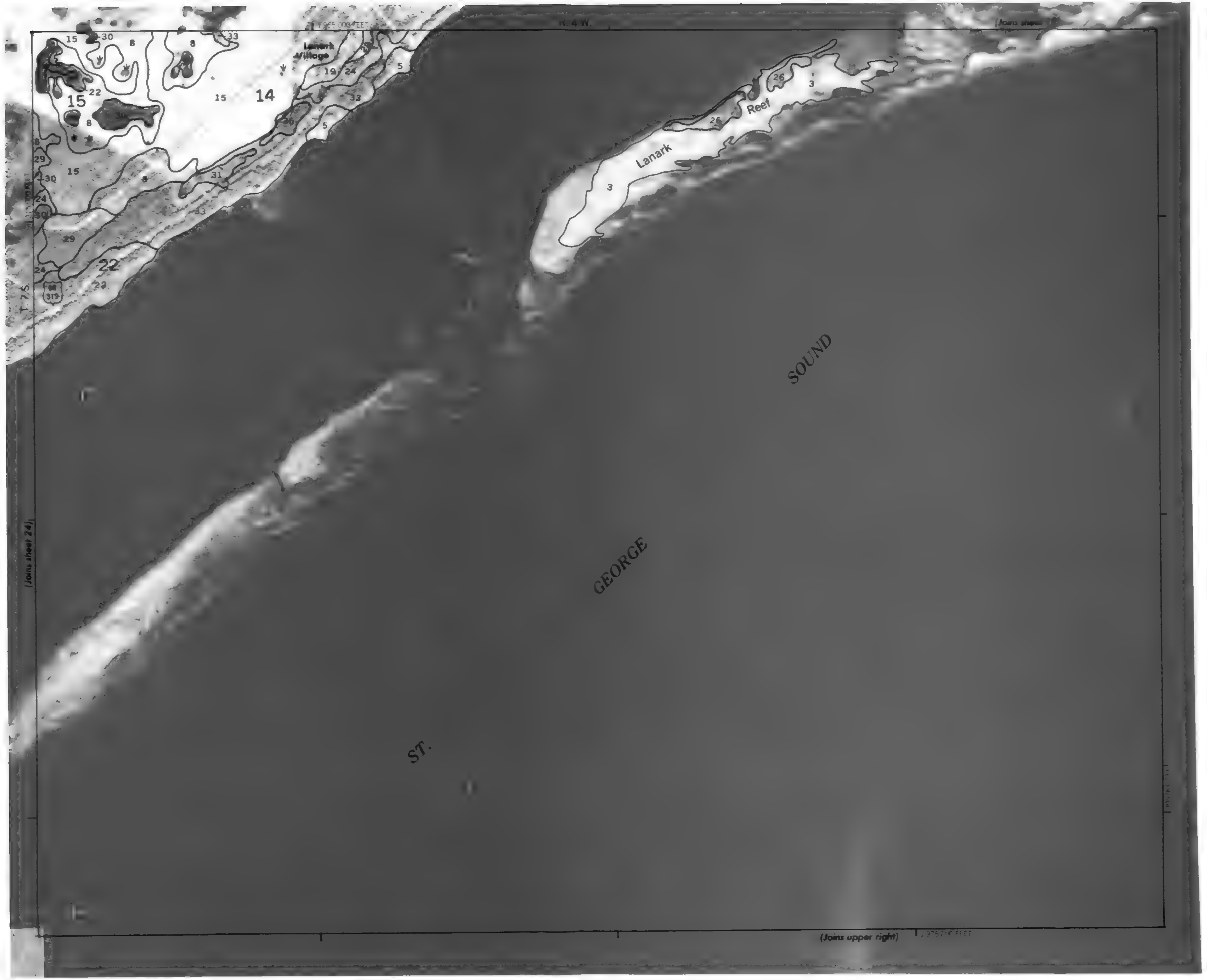

N
(Joins sheet 13)
R. 3 W. | R. 2 W.
Turkey Point
Peninsula Point
ALLIGATOR
HARBOR
GULF
OF
MEXICO
Southwest Cape
(Joins sheet 21)
R. 2 W. | R. 1 W.
T. 7 S. | T. 6 S.
2 035 000 FEET
2 000 000 FEET
120 000 FEET
130 000 FEET
1 MILE
1 KILOMETER
SCALE 1:20 000
0
1/4
1/2
3/4
1
0.5
370

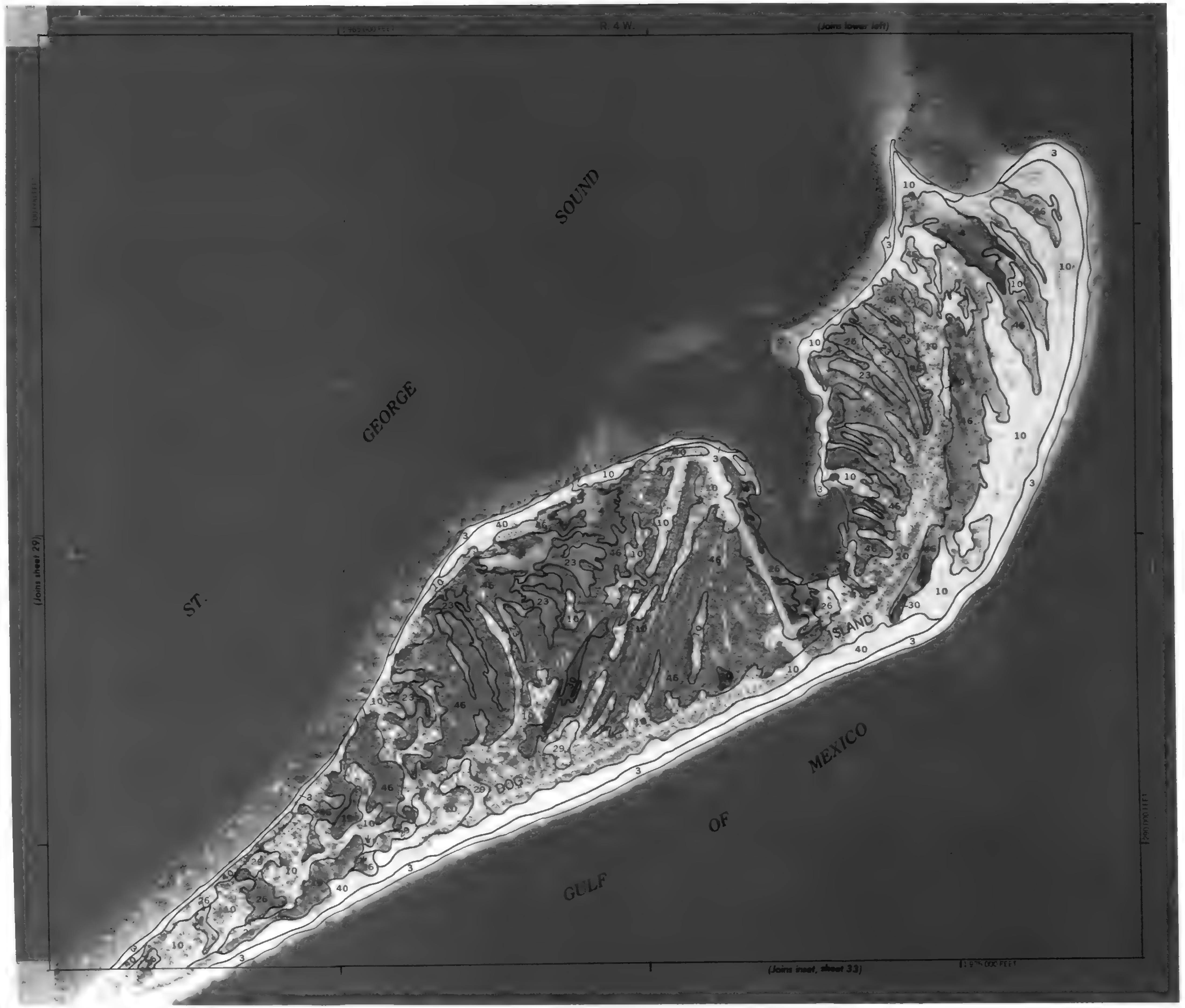

N
R. 1 W.
(Joins sheet 14)
Tucker Lake
SAINT
JAMES
ISLAND
ALLIGATOR
HARBOR
T. 7 S. T. 6 S.
Lighthouse Point
Southwest Cape
GULF
OF
MEXICO
370
1 MILE
1 KILOMETER
SCALE 1:20 000

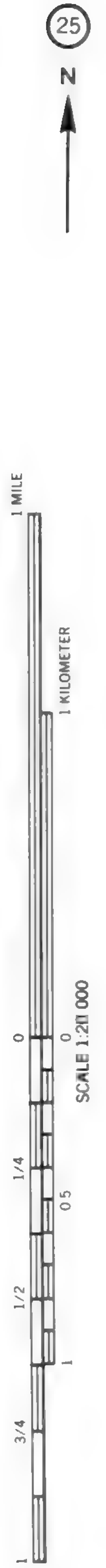

N
1 MILE
1 KILOMETER
SCALE 1:20 000
R. 8 W. | R. 7 W.
(Joins sheet 16)
R. 7 W. | R. 6 W.
(Joins sheet 23)
(Joins sheet 27)
TATES
HELL
SWAMP
Beverly
Graham
Creek
South
Prong
Deep
Creek
Juniper
Creek
Doyle
Creek
Caesar
Creek
George
Whiskey
Creek


R. 6 W. | R. 5 W.
(Joins sheet 17)
(Joins sheet 22)
(Joins sheet 24)
(Joins sheet 28)
George Creek
TATES
HELL
SWAMP
High Bluff Creek
Trout Creek
N
1 MILE
1 KILOMETER
SCALE 1:20 000


N
R. 5 W. | R. 4 W.
(Joins sheet 18)
(Joins sheet 23)
(Joins sheet 29)
TATES HELL SWAMP
Warrens Bluff
Yent Place
RIVER
Kates Bayou
Teal Miller Flats
CARRABELLE RIVER
Davis Island
Timber Island
Postin Bayou
McKissack Ponds
Boggy Jordon Bayou
CARRABELLE LANDING STRIP
CARRABELLE
Chason Pond
Sandy Pond
Lake Morality
SAINT JAMES ISLAND
1 MILE
1 KILOMETER
SCALE 1:20 000


Lanark Village
Lanark Reef
ST. GEORGE SOUND
(Joins sheet 24)
(Joins upper right)


ST. GEORGE SOUND
DOG ISLAND
GULF OF MEXICO
(Joins sheet 29)
(Joins lower left)
(Joins inset, sheet 33)


25
N
1 MILE
1 KILOMETER
SCALE 1:20 000

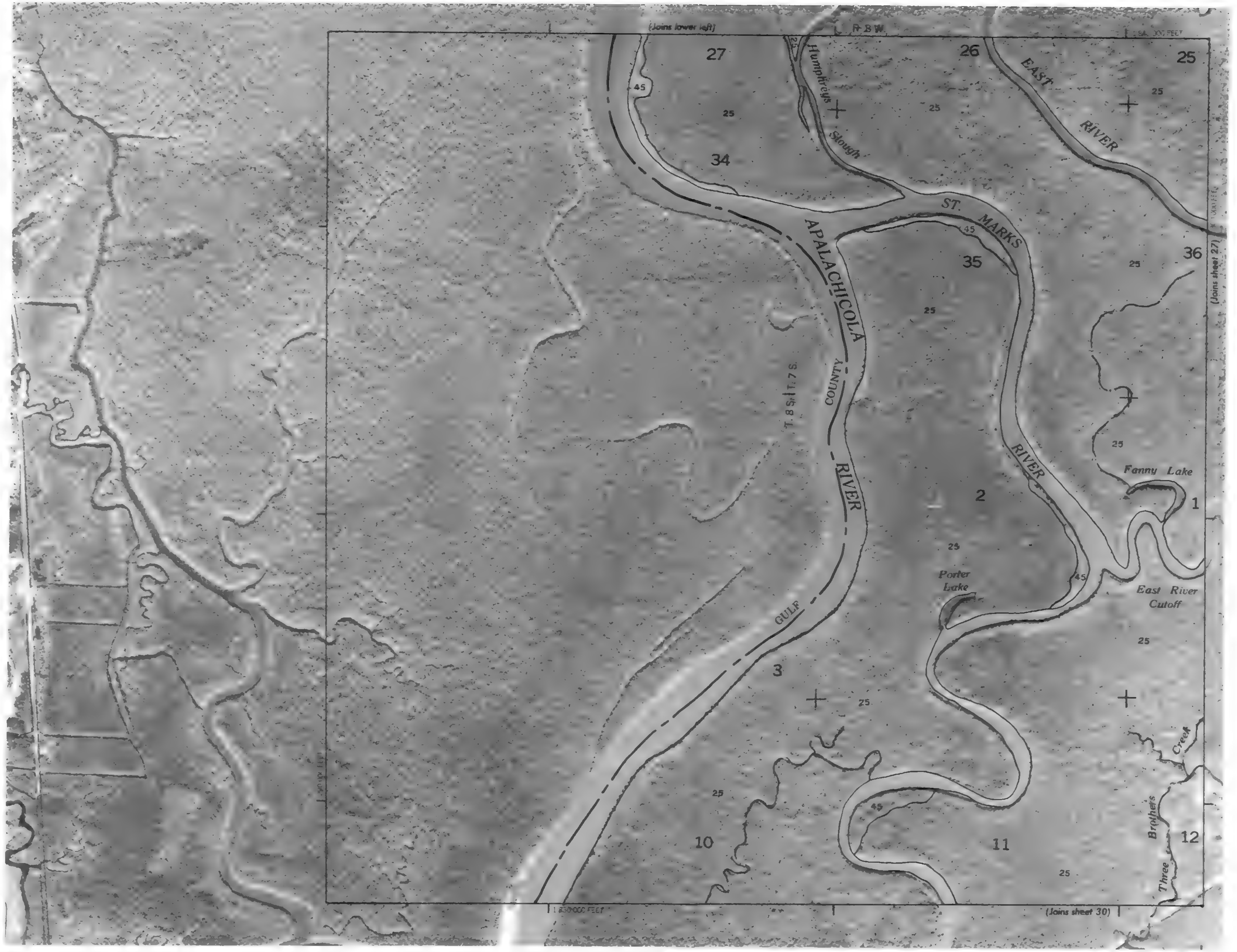
26

N

1 MILE

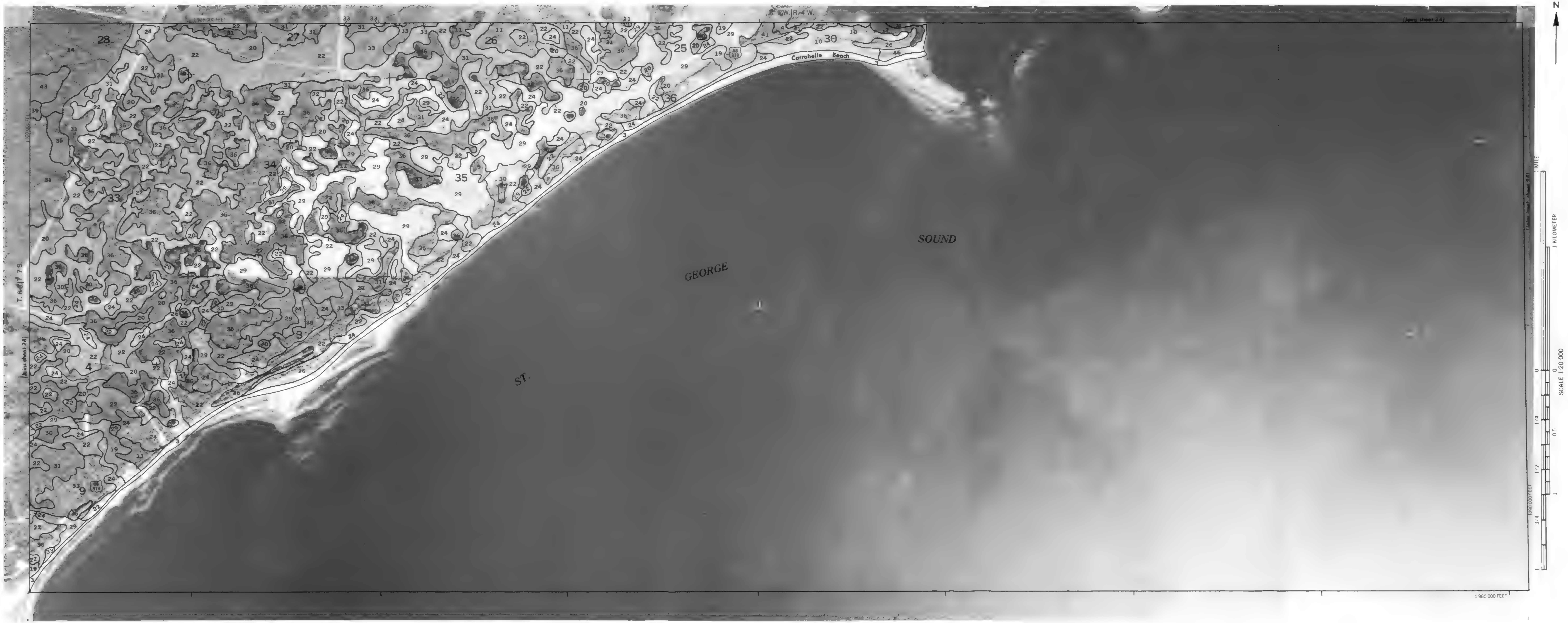
1 KILOMETER

SCALE 1:20 000




N
Caesar Creek
EAST RIVER
East River Cutoff
Chipley Creek
Thankyouma'am Creek
APALACHICOLA
RIVER
Montgomery Slough
Saltwater Creek
Blount Bay
Sand Beach Branch
Doyle Creek
Whiskey George Creek
West Bayou
(Joins sheet 26)
(Joins sheet 22)
(Joins sheet 31)
SCALE 1:20 000
1 MILE
1 KILOMETER

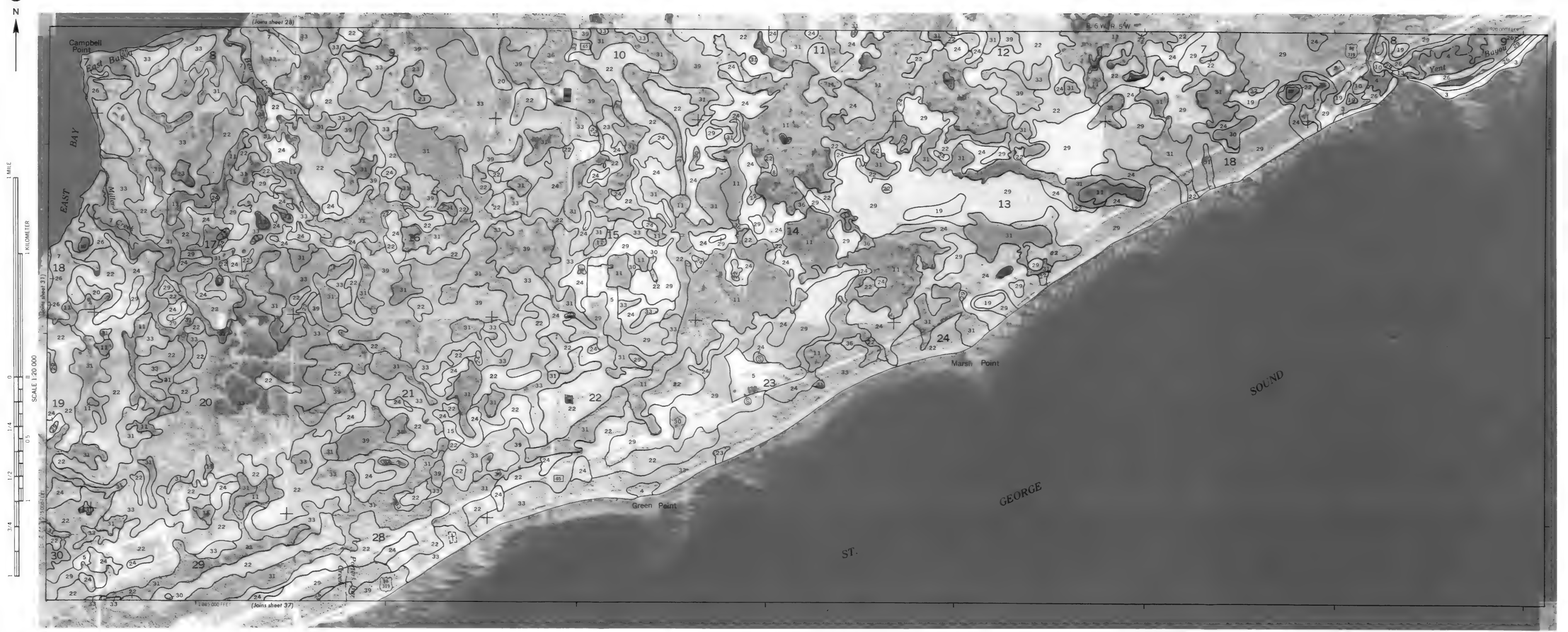

N
1 MILE
1 KILOMETER
SCALE 1:20 000
(Joins sheet 23)
(Joins sheet 32)
R 6 W | R 5 W
Sandbluff Creek
Cash Creek
High Bluff
TATES
HELL
SWAMP
Bonsai Swamp
Cash Swamp
Bear Bay
Cash Bayou
Alligator Point
Rabon Point
Ranch Point
Slave Point
East Bayou

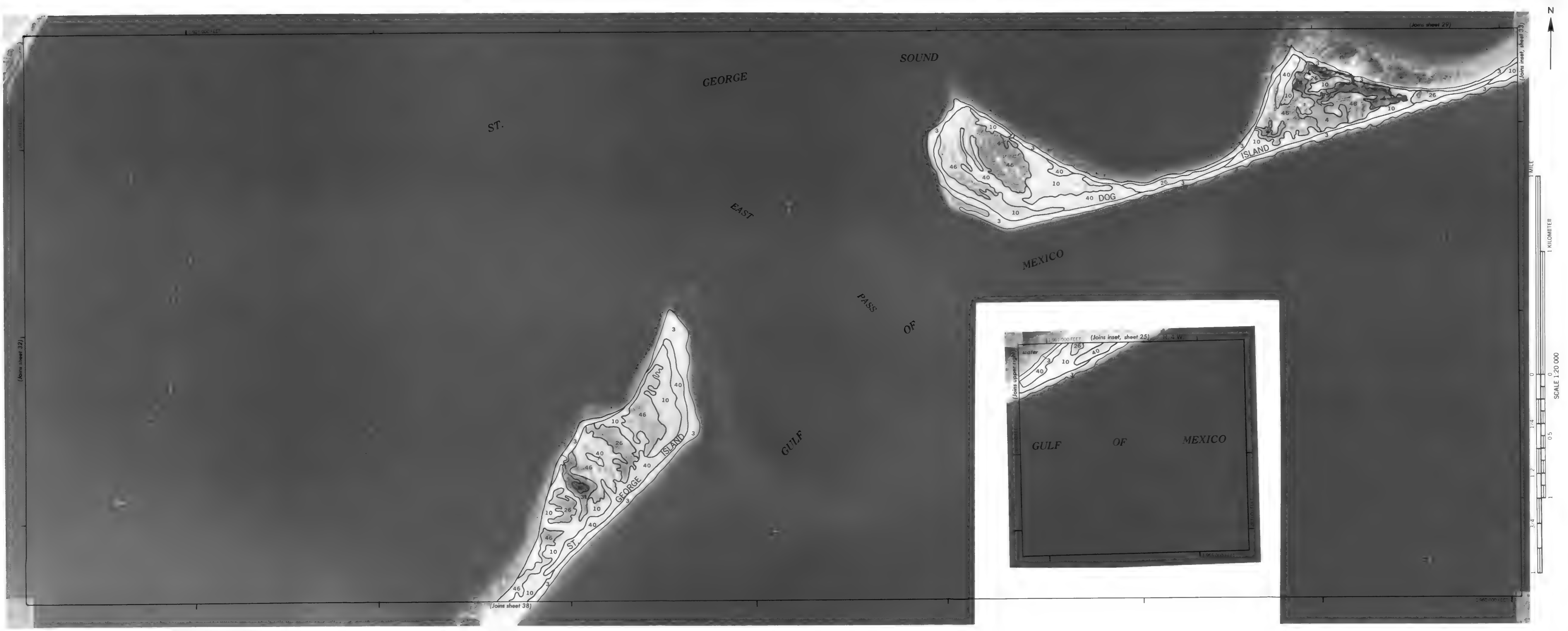


29
N
ST.
GEORGE
SOUND
Carrabelle Beach
1 MILE
1 KILOMETER
SCALE 1:20 000
1 960 000 FEET


N
SCALE 1:20 000
1 MILE
1 KILOMETER
(Joins sheet 26)
(Joins sheet 35)
(Joins sheet 31)
1 805 000 FEET
1 840 000 FEET
GULF COUNTY
INTRACOASTAL WATERWAY
JACKSON RIVER
APALACHICOLA RIVER
R 9 W. | R 8 W.
Deadman Slough
Little Huckleberry Creek
Huckleberry Creek
Sheads Hammock
Pine Log Creek
Tucker Creek
Grassy Creek
Acorn Lake
Lake Creek
ST. MARKS RIVER
LITTLE ST. MARKS RIVER
The Haulover
Three Brothers Creek
Chipley Creek
APALACHICOLA NORTHERN RAILROAD
Bay City

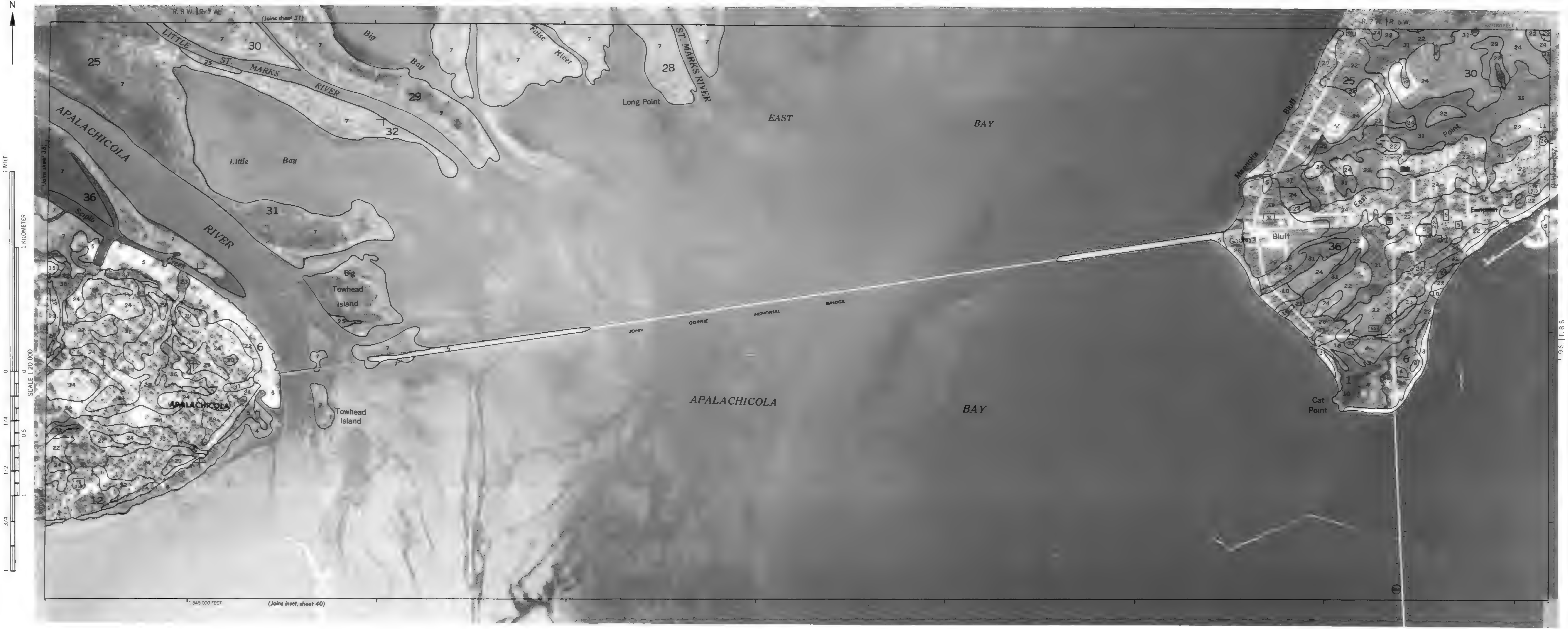

31
N
R.8W. | R.7W.
R.7W. | R.6W.
(Joins sheet 27)
(Joins sheet 30)
(Joins sheet 36)
Blounts Bay
Austin Bayou
Tank Island
Montgomery Slough
Chipley Creek
Chipley Lake
Sams Creek Cutoff
EAST RIVER
ST. MARKS RIVER
LITTLE ST. MARKS RIVER
Buzzard Bayou
Big Bay
False River
EAST BAY
1 MILE
1 KILOMETER
SCALE 1:20 000


32
N
(Joins sheet 28)
(Joins sheet 37)
(Joins sheet 31)
Campbell Point
East Bayou
EAST BAY
Miller Creek
Marsh Point
Green Point
ST. GEORGE SOUND
Yent Bayou
R 6 W R 5 W
1 MILE
1 KILOMETER
SCALE 1:20 000

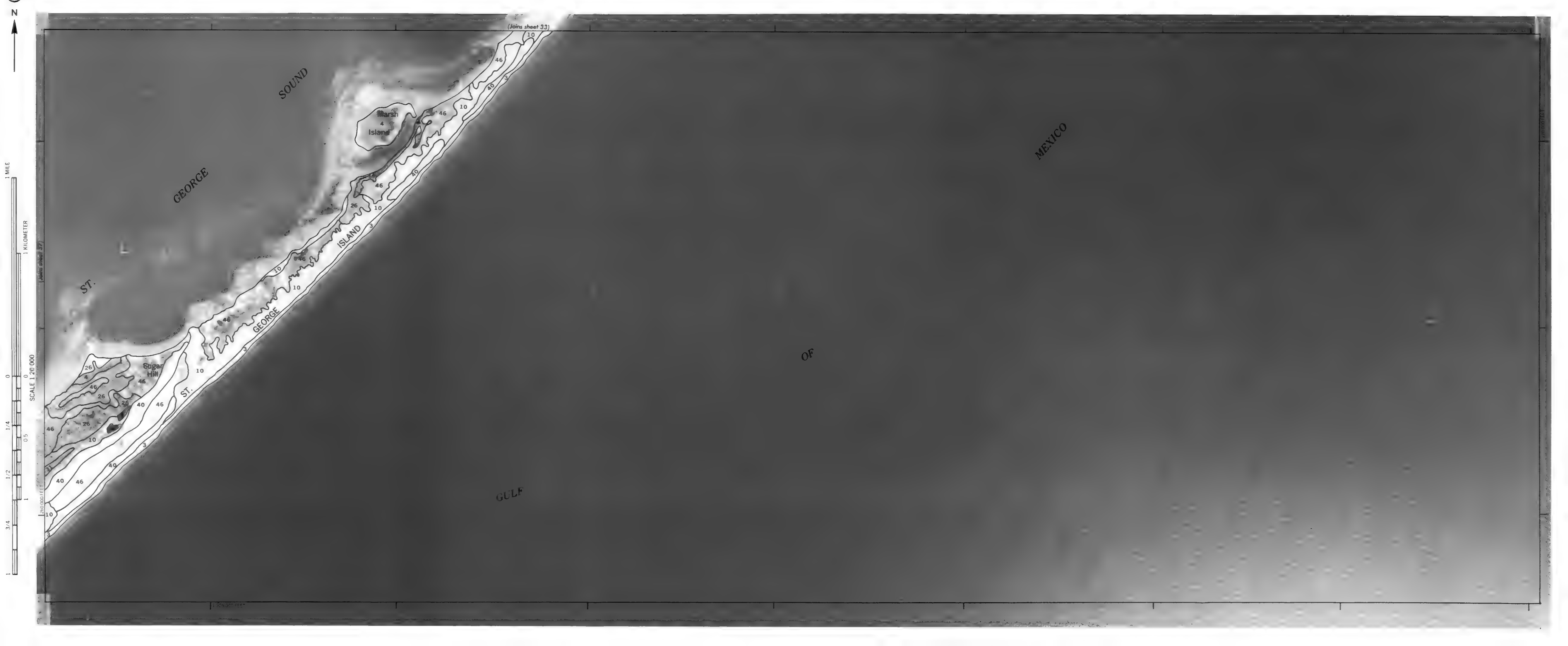

N
(Joins sheet 29)
(Joins inset, sheet 33)
(Joins sheet 32)
(Joins sheet 38)
ST. GEORGE SOUND
EAST PASS
GULF OF MEXICO
DOG ISLAND
ST. GEORGE ISLAND
(Joins inset, sheet 25)
(Joins upper right)
water
GULF OF MEXICO
1 MILE
1 KILOMETER
SCALE 1:20 000


N
1 MILE
1 KILOMETER
SCALE 1:20 000
R. 9 W.
GULF
COUNTY
R. 10 W. | R. 9 W.
APALACHICOLA
NORTHERN
RAILROAD
T. 9 S. | T. 8 S.
Nine Mile
ST. VINCENT SOUND
(Joins sheet 39)
(Joins sheet 35)
1 765 000 FEET
1 800 000 FEET

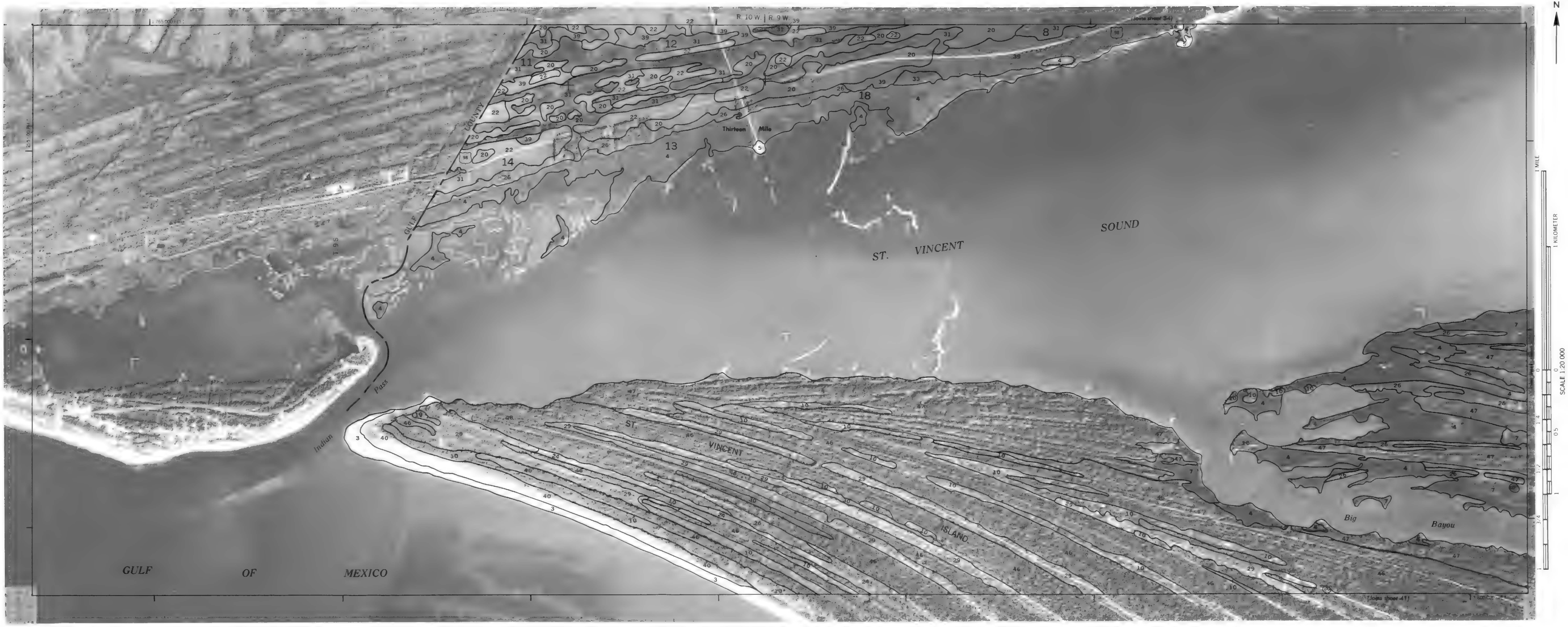

35
N
ST. VINCENT SOUND
APALACHICOLA BAY
APALACHICOLA RIVER
Scipio Creek
Turtle Harbor
Green Point
Tilton
Franklin
APALACHICOLA MUNICIPAL AIRPORT
Nine Mile
1 KILOMETER
SCALE 1:20 000
MILE

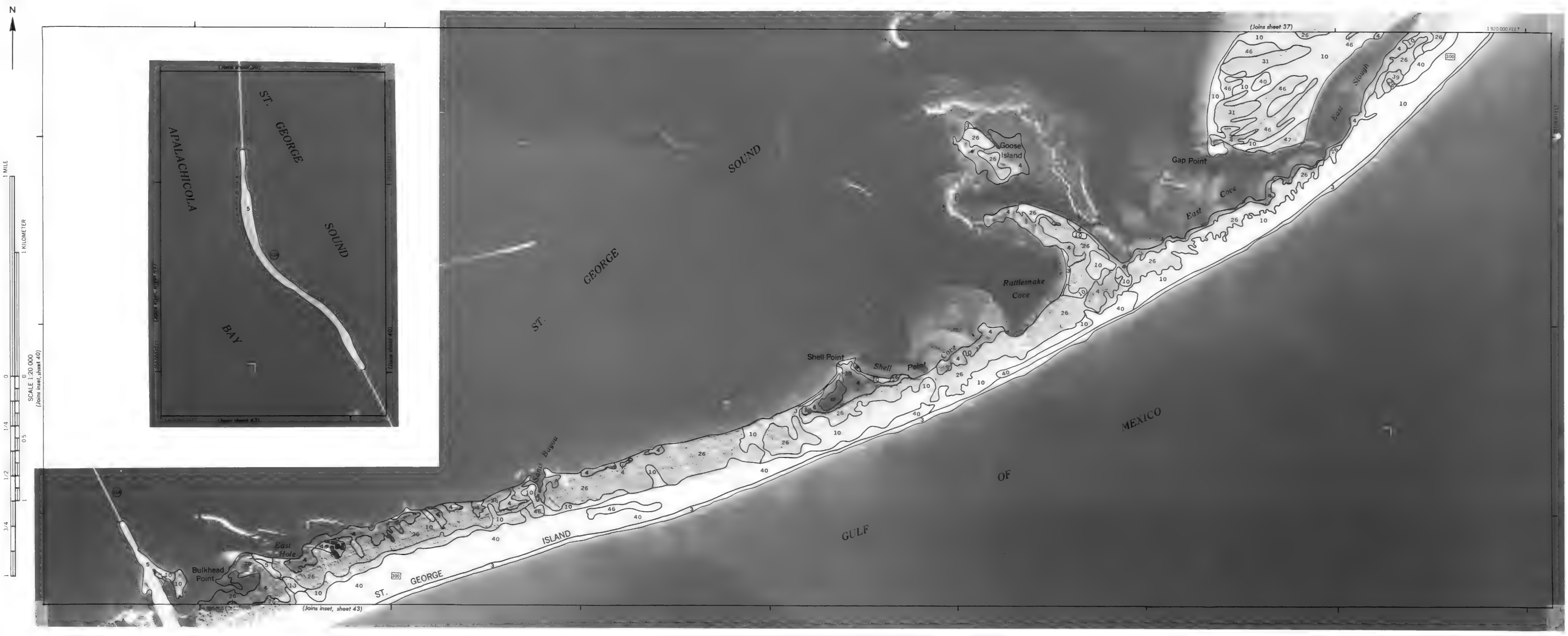

36
N
(Joins sheet 31)
(Joins sheet 35)
(Joins sheet 37)
(Joins inset, sheet 40)
R. 8 W. | R. 7 W.
R. 7 W. | R. 6 W.
LITTLE ST. MARKS RIVER
Big Bay
False River
ST. MARKS RIVER
Long Point
EAST BAY
APALACHICOLA RIVER
Little Bay
Scipio Creek
Big Towhead Island
Towhead Island
JOHN GORRIE MEMORIAL BRIDGE
APALACHICOLA BAY
APALACHICOLA
Magnolia Bluff
East Point
Eastpoint
Godley's Bluff
Cat Point
1 845 000 FEET
SCALE 1:20 000
1 MILE
1 KILOMETER
T. 9 S. | T. 8 S.

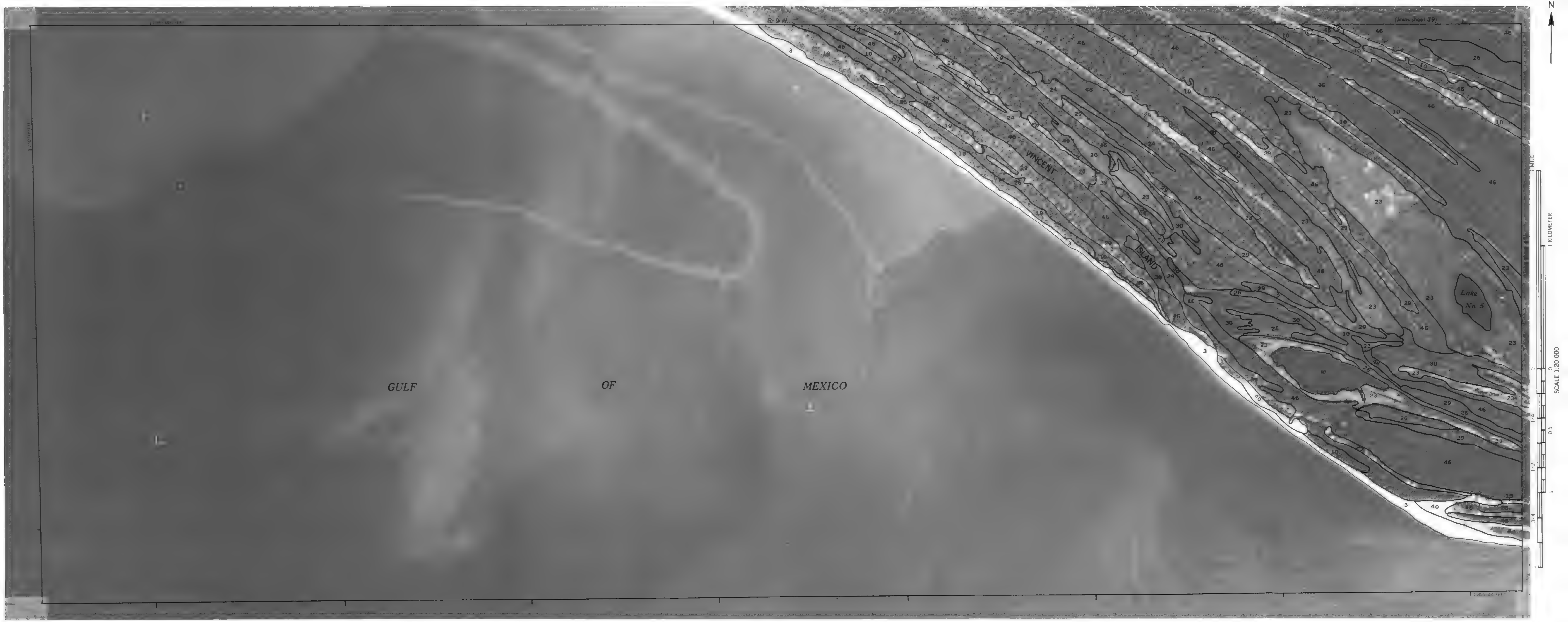

N
(Joins sheet 32)
R. 6 W.
(Joins sheet 36)
(Joins sheet 38)
(Joins sheet 40)
Eastpoint
ST. GEORGE SOUND
ST. GEORGE ISLAND
East Slough
water
1 920 000 FEET
SCALE 1:20 000
1 MILE
1 KILOMETER

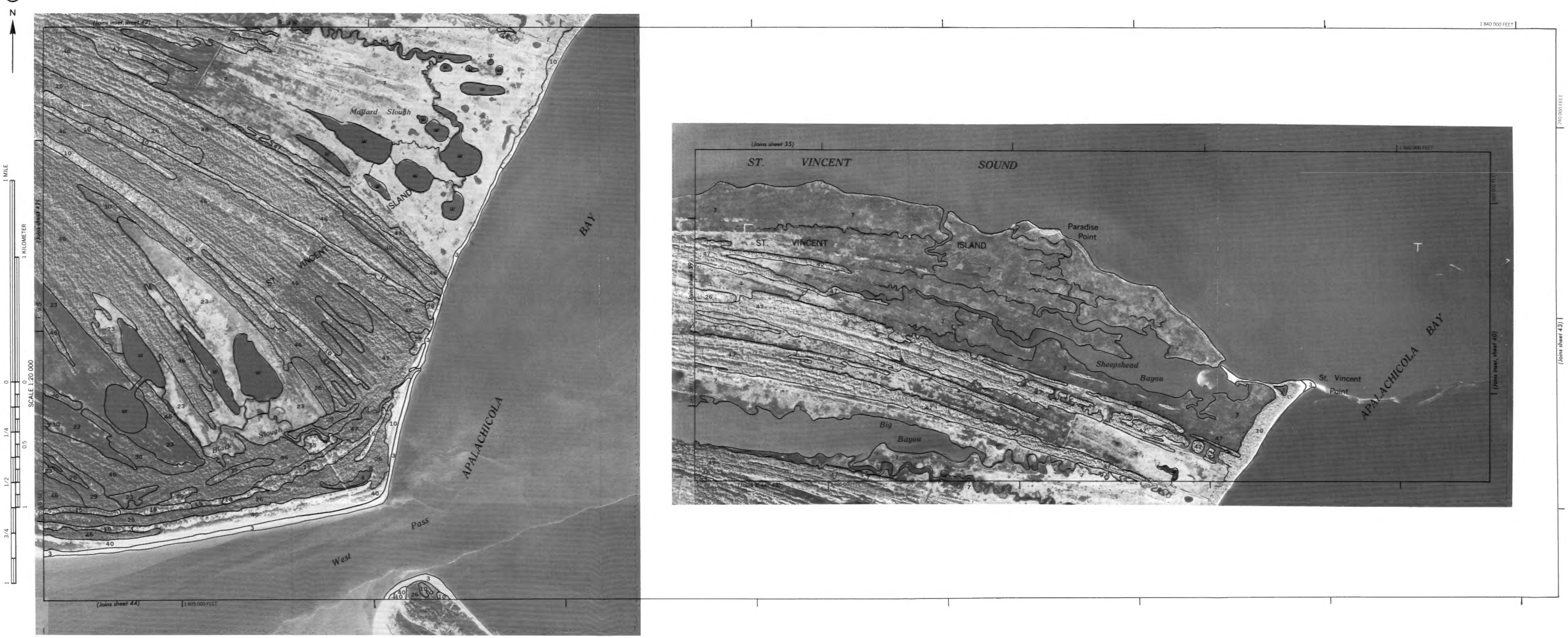

38
N
(Joins sheet 33)
ST. GEORGE SOUND
Marsh Island
Sugar Hill
ST. GEORGE ISLAND
GULF OF MEXICO
3
4
10
26
40
46
SCALE 1:20 000
1 MILE
1 KILOMETER
0
1/4
1/2
3/4
1
0.5

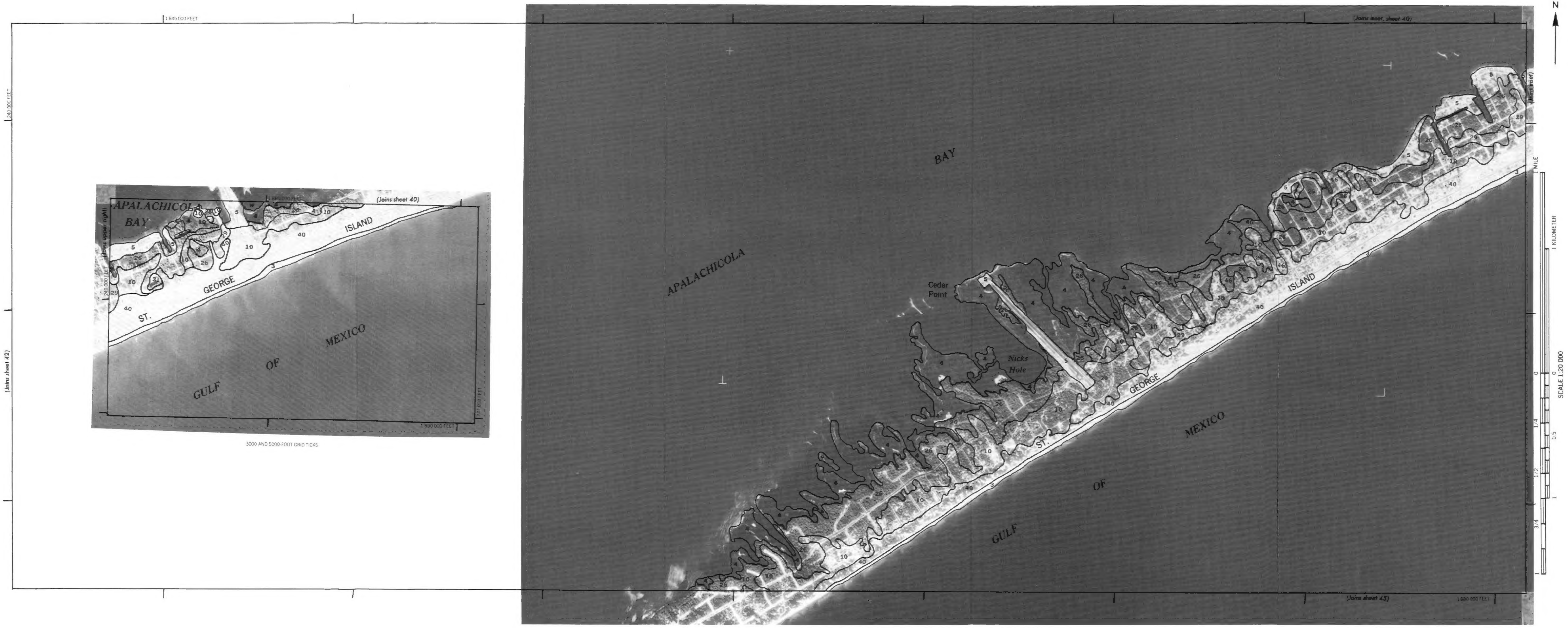
39

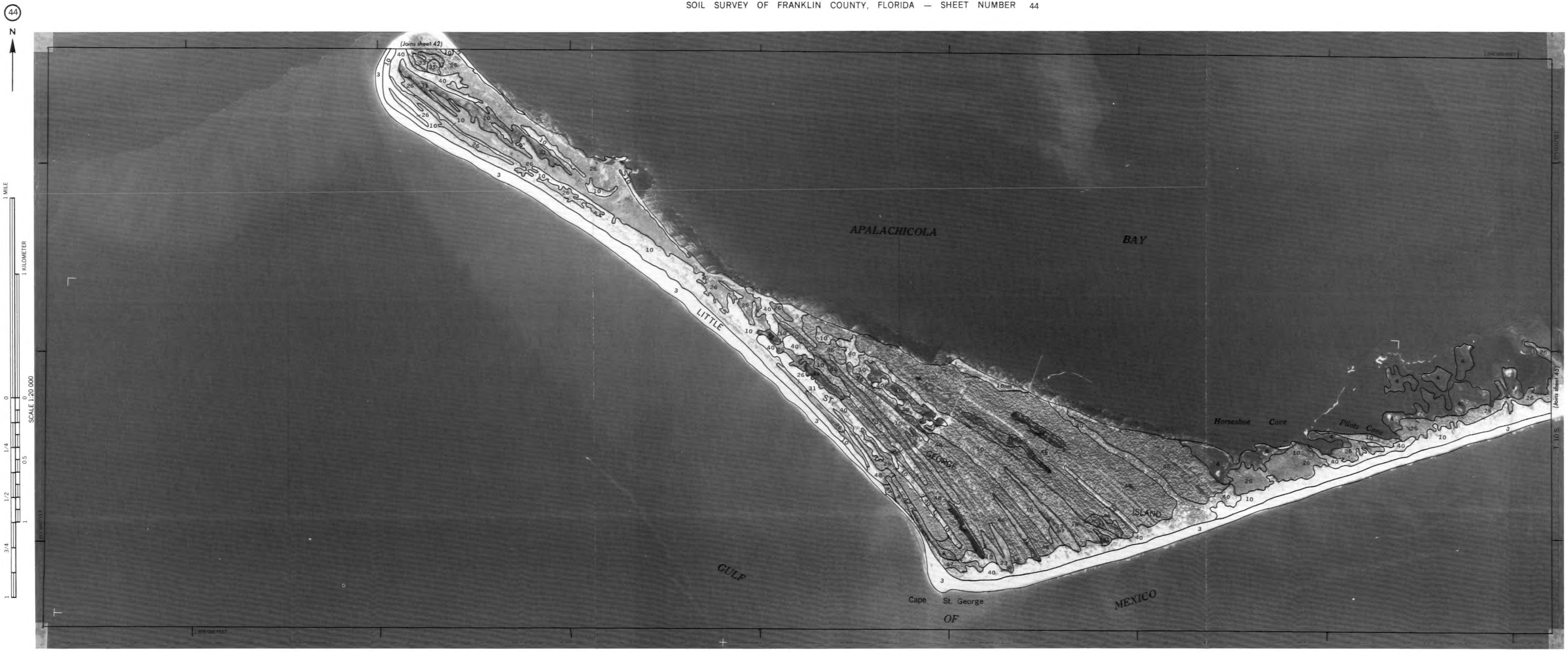

N
R. 10 W. | R. 9 W.
(Joins sheet 34)
GULF
COUNTY
Thirteen Mile
ST. VINCENT SOUND
Indian Pass
ST. VINCENT ISLAND
Big Bayou
GULF OF MEXICO
(Joins sheet 41)
1 MILE
1 KILOMETER
SCALE 1:20 000

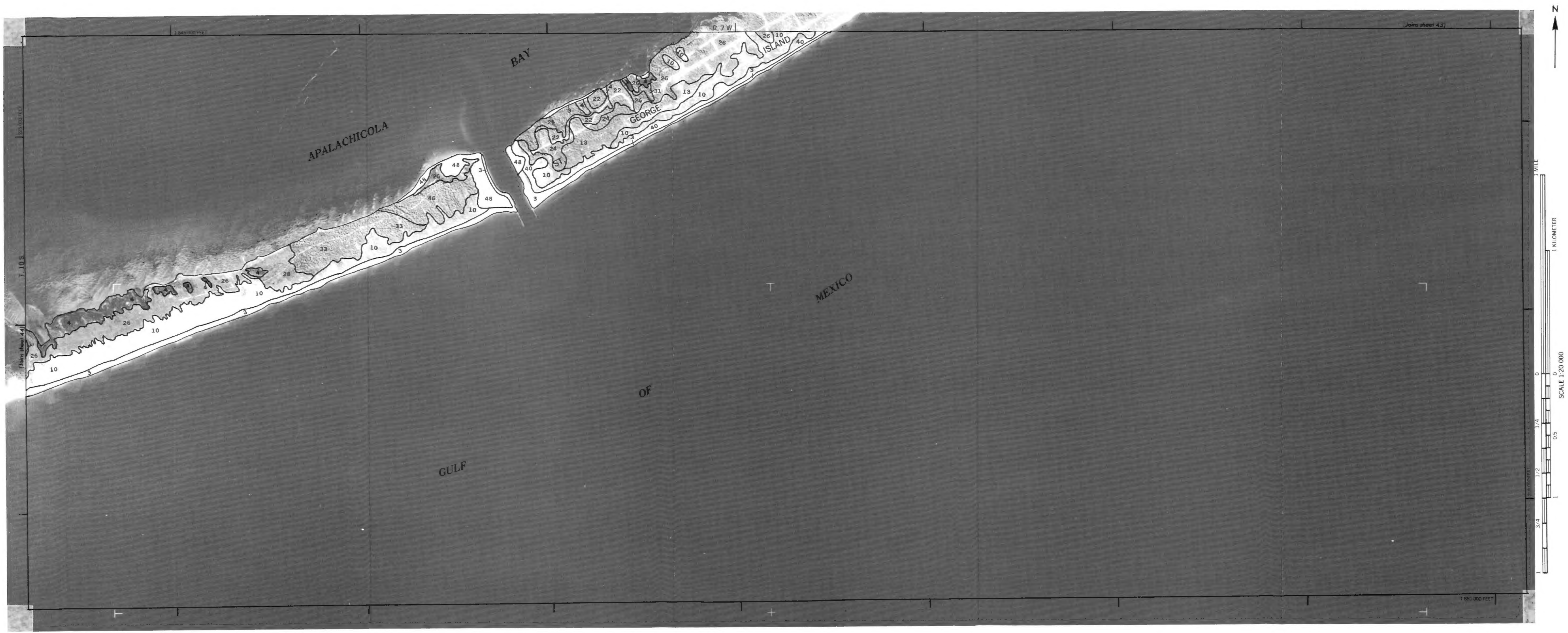

40
N
1 MILE
1 KILOMETER
SCALE 1:20 000
(Joins inset, sheet 40)
(Joins sheet 37)
1 920 000 FEET
APALACHICOLA BAY
ST. GEORGE SOUND
ST. GEORGE SOUND
Goose Island
Gap Point
East Cove
East Slough
Rattlesnake Cove
Shell Point
Shell Point Cove
East Hole
Bulkhead Point
ST. GEORGE ISLAND
GULF OF MEXICO
(Joins inset, sheet 43)


41
N
(Joins sheet 39)
R. 9 W.
ST.
VINCENT
ISLAND
Lake
No. 5
GULF
OF
MEXICO
1 MILE
1 KILOMETER
SCALE 1:20 000


42
N
1 MILE
1 KILOMETER
SCALE 1:20 000
(Joins inset, sheet 42)
Mallard Slough
ST. VINCENT ISLAND
Black Slough
BAY
APALACHICOLA
Pass
West
(Joins sheet 44)
1 805 000 FEET
1 840 000 FEET
(Joins sheet 43)
(Joins sheet 35)
ST. VINCENT SOUND
Paradise Point
ST. VINCENT ISLAND
Sheepshead Bayou
Big Bayou
St. Vincent Point
APALACHICOLA BAY
(Joins inset, sheet 40)


N
(Joins sheet 42)
(Joins sheet 40)
APALACHICOLA BAY
ST. GEORGE ISLAND
GULF OF MEXICO
3000 AND 5000-FOOT GRID TICKS
(Joins inset, sheet 40)
APALACHICOLA BAY
Cedar Point
Nicks Hole
ST. GEORGE ISLAND
GULF OF MEXICO
(Joins sheet 45)
1 MILE
1 KILOMETER
SCALE 1:20 000


44
N
(Joins sheet 42)
(Joins sheet 45)
APALACHICOLA
BAY
LITTLE
ST.
GEORGE
ISLAND
Horseshoe Cove
Pilots Cove
GULF
OF
MEXICO
Cape St. George
1 MILE
1 KILOMETER
SCALE 1:20 000
0
1/4
1/2
3/4
1
0
0.5
1
T. 10 S.


N
APALACHICOLA
BAY
ST.
GEORGE
ISLAND
GULF
OF
MEXICO
R. 7 W.
T. 10 S.
(Joins sheet 44)
(Joins sheet 43)
1 MILE
1 KILOMETER
SCALE 1:20 000
0
1/4
1/2
3/4
1
0.5